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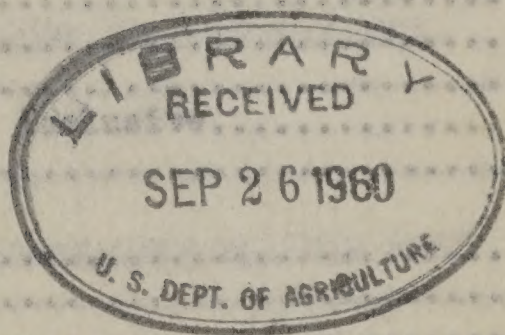
COOPERATIVE BLISTER RUST CONTROL ACTIVITIES AND ACCOMPLISHMENTS

IN THE NORTHEASTERN STATES*

CALENDAR YEAR 1934

ALSO

PERIODS: 1922 TO 1934 INCL. AND 1918 TO 1934 INCL.



By
E. C. Filler and K. K. Stimson

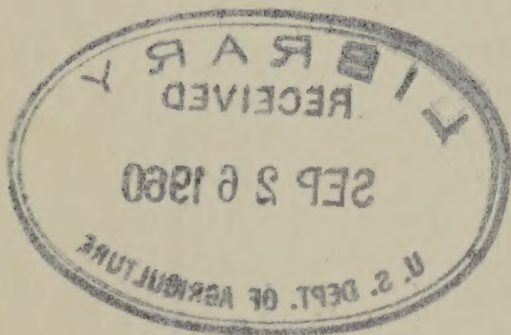
*(New England, New York, Penna. and New Jersey.)

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By
E. C. Miller and K. K. Stimson

*(New England, New York, Penna., and New Jersey.)

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BLISTER RUST CONTROL IN THE NORTHEASTERN STATES

SCOPE OF THE PROBLEM

White Pine

The white pine growth in New England and New York comprises 7,283,399 acres and has a normal commercial value of over \$60 million dollars. This acreage is classified as follows: Pure pine (80 per cent or over), 3,714,182 acres; mixed pine (21-79 per cent pine in mixture), 2,791,883 acres; and pine stocking and restocking in other types, 1,777,834 acres. Of the total pine acreage, 75.1 per cent is located in the three States of Maine, New Hampshire and New York. A similar survey in Pennsylvania and New Jersey revealed a total of 333,323 acres of white pine. In the latter state, the white pine is confined to ornamental forest plantings and to small scattered areas of natural growth in the northwestern part of the state. In addition, throughout the Northeastern States, there are vast areas of mixed growth with pine stocking of less than 25 per cent. Also, millions of white pines are being planted each year; as for example, 5,569,199 white pines were distributed from the New York State nurseries in 1934.

FOREWORD

This report is based on a summarization and analysis of the yearly statistical records submitted by the state leaders, and on general observations made by the federal supervisor. It summarizes the control work performed in the Northeastern States for all years, and especially gives the pertinent facts regarding the 1934 activities. No attempt has been made to discuss future plans, since they will be presented in separate statements.

State	a. - Pure White Pine (80-100% white pine)		b. - Mixed Types Contain- ing White Pine		c. - Other Types with 1-20% White Pine Above Re- stocking Size and Also Pine Restocking	Totals (acres)	White Pine Restocking (All types except pure pine under 8" DBH)
	6" and Over DBH	Under 6" DBH	80-79%	21-29%			
Me.	304,790	284,480	794,915	248,288	976,458	2,608,911	1,703,727
N.H.	263,526	648,226	278,366	296,439	157,477	1,544,033	395,558
Vt.	29,928	73,455	130,147	78,415	225,146	567,084	298,733
Mass.	162,113	238,586	273,266	63,796	179,734	968,564	333,085
R.I.	13,343	436	-	-	59,417	73,196	59,417
Conn.	32,897	40,729	66,551	57,794	16,393	216,164	53,071
N.Y.	214,600	457,171	242,218	281,369	176,269	1,315,957	286,104
N.E. & N.Y.	1,323,992	1,693,190	1,515,463	376,376	1,777,834	7,283,899	3,128,695
N.J.	600	1,500	2,000	1,500	3,000	7,600	3,000
Pa.	51,884	40,043	28,078	98,025	187,830	375,628	226,292
All States	1,073,446	1,784,753	1,845,841	1,076,893	1,937,514	7,667,127	3,357,987

*Excludes those "other types" which have 1-20 per cent white pine (above restocking size) but do not contain white pine restocking.

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BLISTER RUST CONTROL IN THE NORTHEASTERN STATES

SCOPE OF THE PROBLEM

White Pine

The white pine growth in New England and New York comprises 7,283,399 acres and has a normal commercial value of over 300 million dollars. This acreage is classified as follows: Pure pine (80 per cent or over), 2,714,182 acres; mixed pine (21-79 per cent pine in mixture), 2,791,833 acres; and pine stocking and restocking in other types, 1,777,884 acres. Of the total pine acreage, 75.1 per cent is located in the three States of Maine, New Hampshire and New York. A similar survey in Pennsylvania and New Jersey revealed a total of 383,228 acres of white pine. In the latter state, the white pine is confined to ornamental and forest plantings and to small scattered areas of natural growth in the northwestern part of the state. In addition, throughout the Northeastern States, there are vast areas of mixed growth with pine stocking of less than 20 per cent. Also, millions of white pines are being planted each year; as for example, 5,569,199 white pines were distributed from the New York State nurseries in 1934.

Table 1.- Acreage of White Pine in Northeastern States

(Based on cartographical survey of 1925-1927, except in New Jersey where figures represent estimates made in 1934.)

State	a.-Pure White Pine (80-100% white pine)		b.-Mixed Types Contain- ing White Pine		c.-Other Types* with 1-20% White Pine Above Re- stocking Size and also Pine Restocking	Total* (a+b+c)	White Pine Restocking (All types except pure pine under 6" DBH)
	6" and Over DBH	Under 6" DBH	30-79%	21-29%			
Me.	304,790	284,490	794,915	248,258	976,458	2,608,911	1,703,727
N.H.	263,526	548,225	278,366	296,439	157,477	1,544,033	396,558
Vt.	29,923	73,453	160,147	78,415	225,146	567,084	296,733
Mass.	162,113	288,686	273,266	63,765	170,734	958,564	333,085
R.I.	13,343	436	-	-	59,417	73,196	59,417
Conn.	32,697	40,729	66,551	57,794	18,383	216,154	53,071
N.Y.	214,600	457,171	242,218	231,699	170,269	1,315,957	286,104
N.E. & N.Y.	1,020,992	1,693,190	1,815,463	976,370	1,777,884	7,283,899	3,128,695
N.J.	600	1,500	2,000	1,500	2,000	7,600	3,000
Pa.	51,854	40,043	28,078	98,023	157,630	375,628	226,292
All States	1,073,446	1,734,733	1,845,541	1,075,893	1,937,514	7,667,127	3,357,987

*Excludes those "other types" which have 1-20 per cent white pine (above restocking size) but do not contain white pine restocking.

SCOPE OF THE PROBLEM

White Pine

The white pine growth in New England and New York comprises 7,262,382 acres and has a normal commercial value of over 300 million dollars. This acreage is classified as follows: Pure pine (80 per cent or over), 2,714,182 acres; mixed pine (21-79 per cent pine in mixture), 2,721,822 acres; and pine stocking and restocking in other types, 1,777,884 acres. Of the total pine acreage, 75.1 per cent is located in the three States of Maine, New Hampshire and New York. A similar survey in Pennsylvania and New Jersey revealed a total of 322,222 acres of white pine. In the latter State, the white pine is confined to ornamental and forest plantings and is small scattered areas of natural growth in the northwestern part of the State. In addition, throughout the Northeastern States, there are vast areas of mixed growth with pine stocking of less than 20 per cent. Also, millions of white pines are being planted each year; as for example, 2,562,192 white pines were distributed from the New York State nurseries in 1934.

Table 1.- Acreage of White Pine in Northeastern States

(Based on cartographical survey of 1925-1927, except in New Jersey where figures represent estimates made in 1934.)

State	A.-Pure White Pine (80-100% white pine)		B.-Mixed Types Containing Less Than 80% White Pine		C.-Other Types with 1-20% White Pine Above Restocking Size and also Pine Restocking	Total (a+b+c)	White Pine Restocking All types except pure pine under 6" DBH
	Over 6" DBH	Under 6" DBH	50-79%	21-29%			
Me.	304,790	284,490	724,918	248,258	973,176	2,608,911	1,702,727
N.H.	262,328	248,222	278,268	228,429	506,697	1,544,032	326,558
Vt.	29,922	73,422	180,147	78,412	258,559	267,084	226,722
Mass.	162,112	288,688	272,268	82,762	355,030	958,564	322,088
R.I.	18,242	422	-	-	59,417	72,198	59,417
Conn.	22,697	40,729	68,521	27,724	96,245	216,164	52,071
N.Y.	214,600	427,171	242,218	221,699	463,917	1,312,957	286,104
N.H. & Vt.	1,020,922	1,692,190	1,812,462	976,270	2,788,732	7,282,899	2,128,222
N.J.	800	1,200	2,000	1,200	3,200	7,600	2,000
Pa.	21,864	40,042	22,076	28,022	50,098	276,628	226,222
All States	1,072,442	1,734,722	1,842,241	1,072,622	2,914,863	7,867,127	2,267,987

*Excludes those "other types" which have 1-20 per cent white pine (above restocking size) but do not contain white pine restocking.

Table 2.- Commercial Value of White Pine in Northeastern States

State	Pure White Pine (80-100% white pine)		Mixed Types Containing White Pine		White Pine (Above re- stocking size) in Other Types*	White Pine Restocking in all Types Ex- cept "Pure Pine Under 6" DBH	Total (Including white pine restocking)
	6" and Over DBH	Under 6" DBH	30-79%	21-29%			
Me.	\$ 34,136,480	\$ 7,112,250	\$ 44,515,240	\$ 6,951,224	\$ 6,835,206	\$2,559,199	\$102,109,599
N.H.	29,514,912	13,705,625	15,588,496	8,300,292	1,102,339	707,534	68,919,198
Vt.	3,351,376	1,836,325	8,968,232	2,195,620	1,576,022	412,279	18,339,854
Mass.	18,156,656	7,217,150	15,302,896	1,785,420	1,195,138	599,752	44,257,012
R.I.	1,494,416	10,900	-	-	415,919	80,818	2,002,053
Conn.	3,662,064	1,018,225	3,726,856	1,618,232	128,681	86,358	10,240,416
N.Y.	24,035,200	11,429,275	13,564,208	6,487,572	1,191,883	419,084	57,127,222
N.E. & N.Y.	114,351,104	42,329,750	101,665,928	27,338,360	12,445,188	4,865,024	302,995,354
N.J.	67,200	37,500	112,000	42,000	14,000	3,000	275,700
Pa.	5,807,648	1,001,075	1,572,368	2,744,644	1,103,410	226,292	12,455,437
All States	\$120,225,952	\$43,368,325	\$103,350,296	\$30,125,004	\$13,562,598	\$5,094,316	\$315,726,491

*Excludes those "other types" which have 1-20 per cent white pine (above restocking size) but do not contain white pine restocking.

Basis for estimating value of merchantable white pines: stumpage figured at normal value of \$7.00 per M - average volume per acre, pure merchantable white pine = 16 M board feet, mixed white pine 30-79% = 8 M board feet, mixed white pine, 21-29% = 4 M board feet, and white pine, above restocking size, in other types = 1 M board feet. Pure stands of white pine under 6" DBH given normal value of \$25.00 per acre.

Basis for estimating normal per acre value of white pine restocking: degree of restocking, light = \$1.00, medium = \$2.00, heavy = \$3.00.

Table 2. - Commercial Value of White Pine in Northwestern States

State	Pure White Pine (80-100% white pine)		Mixed Types Containing White Pine		White Pine (Above re- stocking size) in other types	White Pine Restocking in all types except pure white pine under 8" DBH	Total (Including white pine restocking)
	8" and Over DBH	Under 8" DBH	50-75%	21-50%			
Me.	34,138,480	7,112,250	44,515,240	6,951,284	6,835,206	48,602,192	102,109,828
N.H.	22,514,912	13,705,688	12,588,496	8,200,232	1,102,358	707,524	68,910,198
Vt.	3,351,376	1,826,328	8,968,224	2,125,620	1,276,022	412,178	16,839,884
N.M.	10,138,688	7,217,160	18,302,800	1,768,460	1,125,128	599,162	44,527,012
N.J.	1,424,416	10,200	-	-	412,912	80,816	2,002,084
Conn.	2,622,024	1,018,224	3,736,856	1,618,224	128,681	86,256	10,240,416
N.Y.	24,026,200	11,428,272	13,564,208	5,487,372	1,121,882	419,084	67,127,222
N.C.	114,321,104	42,220,750	101,685,928	27,238,280	12,442,128	4,862,024	302,982,284
N.J.	27,200	27,500	112,000	42,000	14,000	2,000	272,700
Pa.	8,807,648	1,001,072	1,272,868	2,744,644	1,102,410	222,292	12,452,427
All States	418,222,928	142,368,328	4102,280,228	120,122,004	112,262,288	42,094,216	4312,722,491

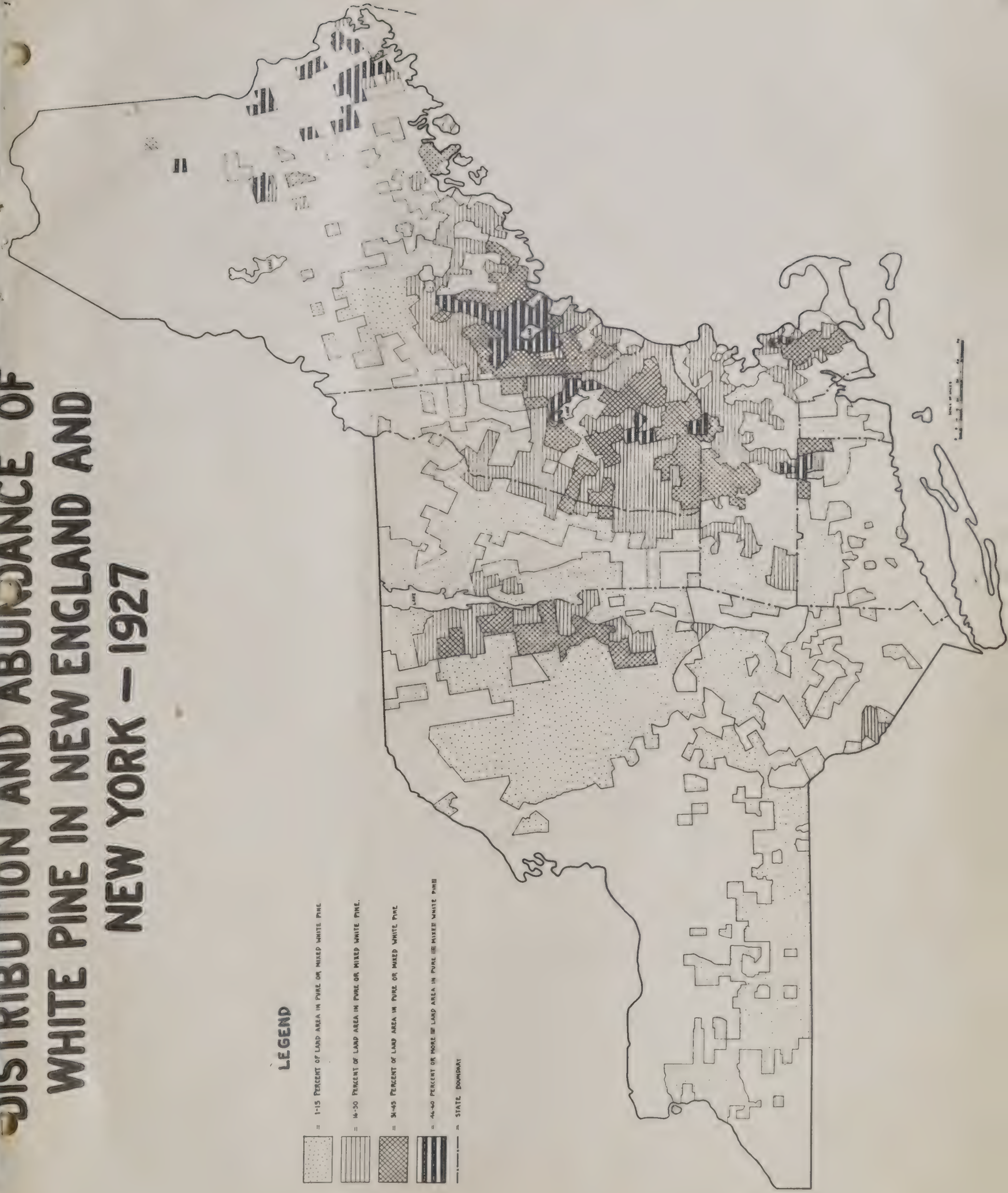
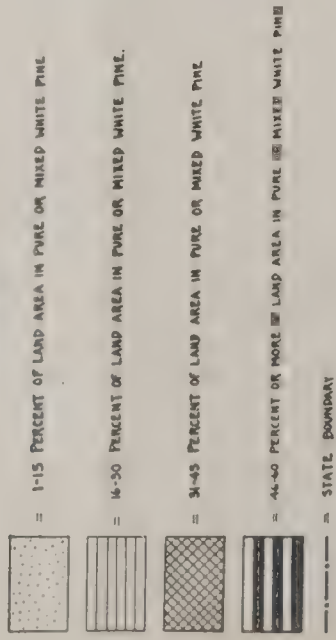
*Excludes those "other types" which have 1-50 per cent white pine (above restocking size) but do not contain white pine restocking.

Basis for estimating value of merchantable white pines: stumpage figured at normal value of \$7.00 per M - average volume per acre, pure merchantable white pine = 16 M board feet, mixed white pine 30-75% = 8 M board feet, mixed white pine, 21-30% = 4 M board feet, and white pine, above restocking size, in other types = 1 M board foot. Pure stands of white pine under 8" DBH given normal value of \$25.00 per acre.

Basis for estimating normal per acre value of white pine restocking: degree of restocking, light = \$1.00, medium = \$2.00, heavy = \$3.00.

DISTRIBUTION AND ABUNDANCE OF WHITE PINE IN NEW ENGLAND AND NEW YORK — 1927

LEGEND



Ribes

Wild Ribes occur more or less generally distributed throughout the white pine region of the Northeastern States, but vary locally as to site, species, size, and abundance. Nine indigenous species have been encountered in control work, four being gooseberries and five currants, exclusive of Ribes vulgare which is considered an escaped cultivated red currant. The number of Ribes varies from 100 or more per acre in some sites to few or none in others. The aggregate, however, represents many millions of such bushes, as evidenced by the eradication of 132,348,235 wild Ribes in the Northeastern States during the period 1918 to 1934, inclusive. It has been determined by Fivas that shade is an important factor in eliminating and suppressing Ribes, that Ribes seed remain dormant and viable in the duff for years, and that disturbance of the duff by logging, fire, animals, or mechanical means favors the germination of such dormant seeds. Therefore, Ribes are usually found most abundant in open situations, such as recently cut-over or burned areas, pastures, swamps, fence rows, etc. The amount and distribution of wild Ribes per acre, based on town units, is designated on the following map. The cultivated Ribes problem is indicated by the 787,772 cultivated bushes that have been destroyed in applying control measures since 1918.

Infection

Blister rust infection is general throughout the white pine range in New England and New York. Over extensive areas, from 1 to 20 percent or more of the pines are infected; and in many local pine tracts, from 50 to 100 percent of the trees are dead or dying. The amount of disease varies considerably in different localities and is directly influenced by such factors as the number of original infection centers caused by the planting of imported diseased pine, the distribution and amount of native pine, association of pine and Ribes, abundance of Ribes, climatic conditions, and the application of control measures. In Essex and Warren Counties, New York, and in the upper Connecticut River valley region, where Ribes are generally abundant, pine infection is also heaviest; 11 to 20 percent or more of the trees being diseased. In southern New England and in most of southern New York, less than one percent of the pines are infected, except in a few limited areas.

Blister rust has existed in Pennsylvania and New Jersey for several years, but was not reported on native pines in the former state until 1927, and in the latter during 1934. The relatively slow spread of the disease prior to that time may be attributed chiefly to the fewer plantations of imported diseased stock and to the localization of native pine areas. Studies, made in unprotected areas in Pennsylvania during December 1934 and January-February 1935, show that the amount of disease is increasing at an alarming rate. Ten plots, comprising 9 $\frac{1}{2}$ acres, were laid out in the counties of Clarion and Potter. These plots contained 3,984 white pines, of which 2,618, or 66 percent, were infected with 10,605 cankers. The intensification of the disease is indicated by the fact that 62 percent of the cankers were of 1930 or 1931 origin. Fifty percent of the infected trees have trunk cankers and over .14 percent of the diseased pines have already been killed.

The scouting work in New Jersey during 1934 revealed 17 scattered infections on native pines in the township of Montague in the northwestern part of the state. A pre-eradication survey in the township of West Milford in Passaic County also showed several spot pine infections, the heaviest being on a property where Ribes nigrum had existed up to a few years ago.

Wild Ribes occur more or less generally distributed throughout the white pine region of the Northwestern States, but vary locally as to size, species, and abundance. Nine indigenous species have been encountered in control work, four being gooseberries and five currants, exclusive of Ribes vulgare which is considered an escaped cultivated red currant. The number of Ribes varies from 100 or more per acre in some sites to few or none in others. The aggregate, however, represents many millions of such bushes, as evidenced by the eradication of 132,348,285 wild Ribes in the Northwestern States during the period 1918 to 1934, inclusive. It has been determined by tests that shade is an important factor in eliminating and suppressing Ribes, that Ribes seed remains dormant and viable in the soil for years, and that disturbance of the soil by logging, fire, animals, or mechanical means favors the germination of such dormant seeds. Therefore, Ribes are usually found most abundant in open situations, such as recently cut-over or burned areas, pastures, swamps, fence rows, etc. The amount and distribution of wild Ribes per acre, based on town units, is designated on the following map. The cultivated Ribes problem is indicated by the 187,772 cultivated bushes that have been destroyed in applying control measures since 1918.

Infection

Blister rust infection is general throughout the white pine range in New England and New York. Over extensive areas, from 1 to 20 percent or more of the pines are infected; and in many local pine tracts, from 20 to 100 percent of the trees are dead or dying. The amount of disease varies considerably in different localities and is directly influenced by such factors as the number of original infection centers caused by the planting of imported diseased pine, the distribution and amount of native pine, association of pine and Ribes, abundance of Ribes, climatic conditions, and the application of control measures. In Essex and Warren Counties, New York, and in the upper Connecticut River valley region, where Ribes are generally abundant, pine infection is also heaviest; 11 to 20 percent or more of the trees being diseased. In southern New England and in most of southern New York, less than one percent of the pines are infected, except in a few limited areas.

Blister rust has existed in Pennsylvania and New Jersey for several years, but was not reported on native pines in the former state until 1927, and in the latter during 1934. The relatively slow spread of the disease prior to that time may be attributed chiefly to the fewer plantations of imported diseased stock and to the localization of native pine areas. Studies, made in unprotected areas in Pennsylvania during January-February 1935, show that the amount of disease is increasing at an alarming rate. Ten plots, comprising 91 acres, were laid out in the counties of Clarion and Potter. These plots contained 3,984 white pines, of which 2,718, or 68 percent, were infected with 13,408 cankers. The infection of the disease is indicated by the fact that 32 percent of the cankers were of 1930 or 1931 origin. Fifty percent of the infected trees have trunk cankers and over 14 percent of the diseased pines have already been killed.

The following work in New Jersey during 1934 revealed 17 scattered infections on native pines in the township of Montague in the northwestern part of the state. A pre-eradication survey in the township of West Milford in Passaic County also showed several spots of infection, the heaviest being on a property where Ribes nigra had existed up to a few years ago.

During 1934 plot studies were made to determine the amount of blister rust infection on white pine in unprotected areas. A total of 35 plots, comprising 31.2 acres, were established in the States of New Hampshire, New York, Vermont, Maine, Massachusetts and Pennsylvania. These plots contained 17,569 white pine, 49.9 percent of which were infected with 22,228 cankers. Over 37 percent of these infections originated during the years 1930 and 1931, which shows the danger of delaying protection work.

An additional study was made in a 9-3/4 acre plot in an unprotected area in the township of Minot, Maine. Over 49 percent of the 5,262 pines were found to be infected. In this study only the age of the oldest canker on each infected tree was recorded, consequently there is no information available on the total number of cankers.

The distribution and amount of white pine blister rust infection, based on township units, in New England and New York is shown on the following map. A direct correlation between pine infection and abundance of Ribes is apparent when this map is compared with the Ribes map on Page 6.

DISTRIBUTION AND ABUNDANCE OF WILD RIBES IN NEW ENGLAND AND NEW YORK

BASIS

NUMBER OF WILD RIBES PER ACRE OF LAND

1-10 WILD RIBES PER ACRE

11-20 WILD RIBES PER ACRE

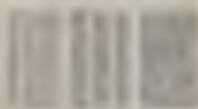
21-30

31-40

41-50

STATE BOUNDARY

LEGEND



During 1934 plot studies were made to determine the amount of blister rust infection on white pine in unprotected areas. A total of 35 plots, comprising 21.5 acres, were established in the States of New Hampshire, New York, Vermont, Maine, Massachusetts and Pennsylvania. These plots contained 17,569 white pine, 22.5 percent of which were infected with 32,333 cankers. Over 57 percent of these infections originated during the years 1930 and 1931, which shows the danger of delaying protection work.

An additional study was made in a 2-3/4 acre plot in an unprotected area in the town of Lincoln, Maine. Over 49 percent of the 5,262 pines were found to be infected. In this study only the age of the oldest canker on each infected tree was recorded, consequently there is no information available on the total number of cankers.

The distribution and amount of white pine blister rust infection, based on township units, in New England and New York is shown on the following map. A direct correlation between pine infection and abundance of Ribes is apparent when this map is compared with the Ribes map on page 6.

DISTRIBUTION AND ABUNDANCE OF WILD RIBES IN NEW ENGLAND AND NEW YORK

BASIS

NUMBER OF WILD RIBES PER ACRE OF LAND AREA IN EACH TOWN

LEGEND

LESS THAN ONE WILD RIBES PER ACRE

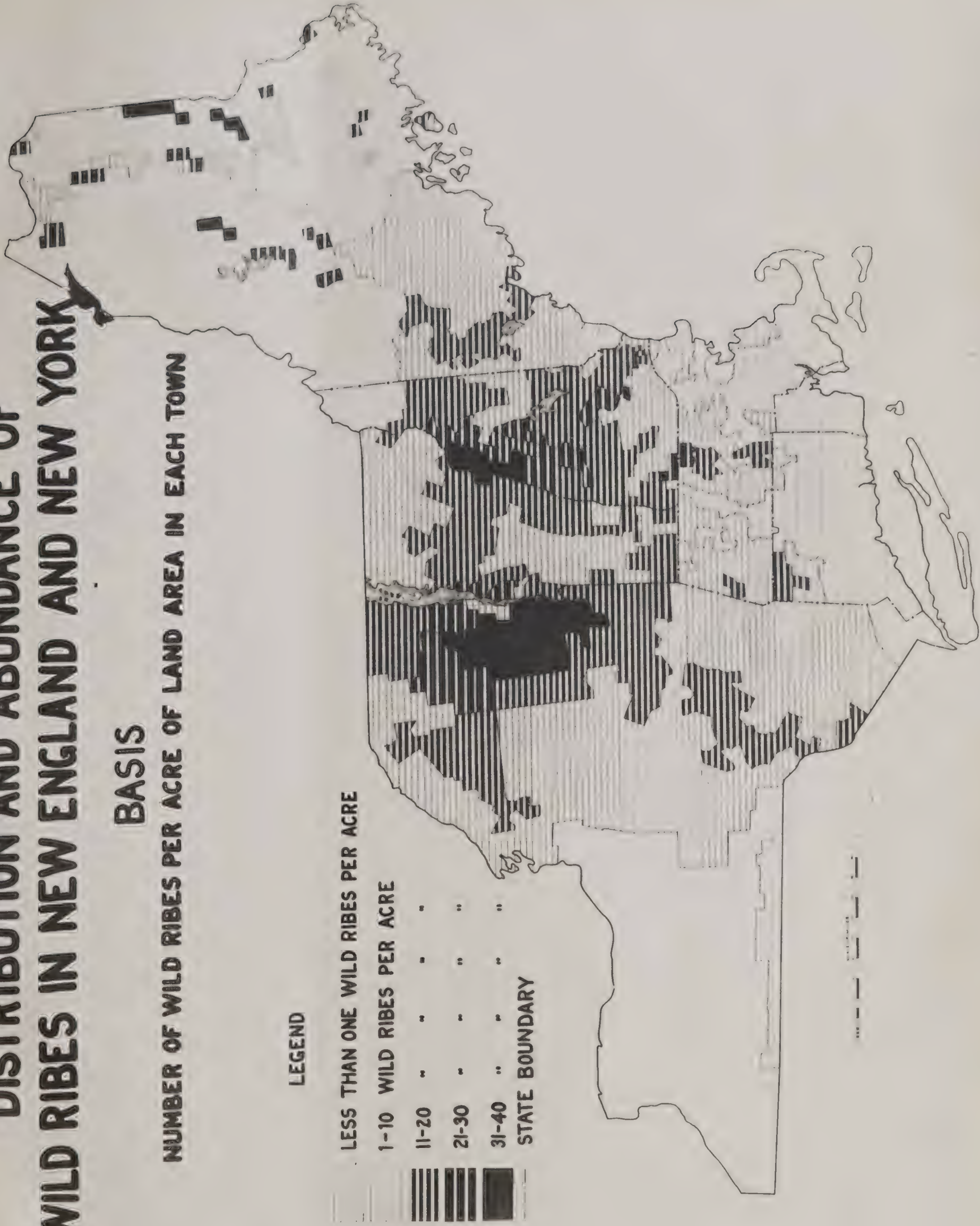
1-10 WILD RIBES PER ACRE

11-20 " " " "

21-30 " " " "

31-40 " " " "

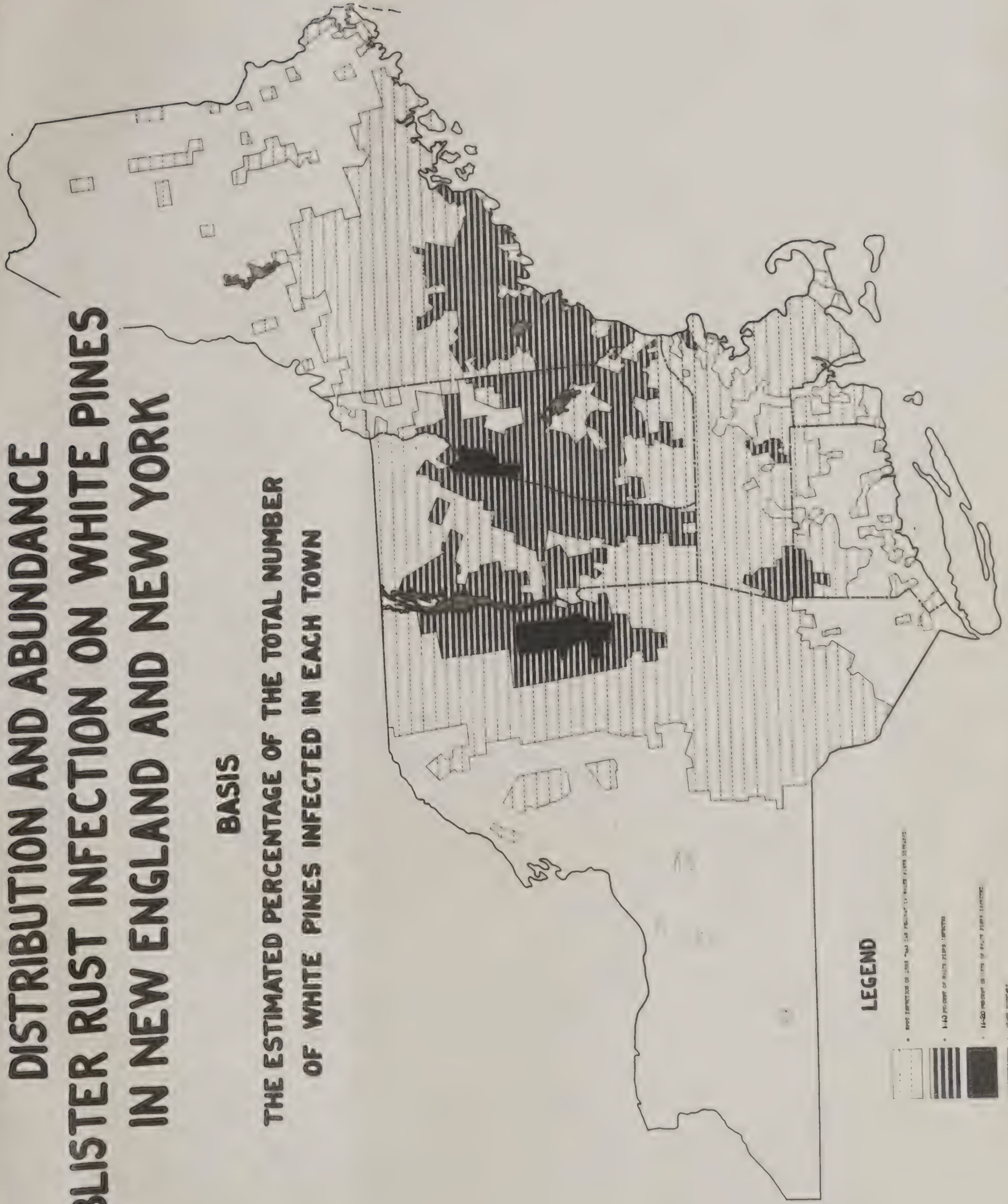
STATE BOUNDARY



DISTRIBUTION AND ABUNDANCE BLISTER RUST INFECTION ON WHITE PINES IN NEW ENGLAND AND NEW YORK

BASIS

THE ESTIMATED PERCENTAGE OF THE TOTAL NUMBER
OF WHITE PINES INFECTED IN EACH TOWN



POLICY

During the period 1918 to 1921, inclusive, the Federal Government cooperated with the states in experimental control work on a dollar for dollar basis. This work was conducted in each state under a cooperative agreement between the United States Department of Agriculture and the authorized state regulatory agency, the latter usually being the state forestry department. The control work was directed by the state officials under the general supervision of the Government, which paid a part of the Ribes eradication costs.

In 1922, a new program to secure the general application of control measures was inaugurated by the United States Department of Agriculture in cooperation with the state regulatory agencies and the state extension services. This program has been in operation since that time, but was altered during 1933 and 1934 to include the blister rust control work performed under the various Federal emergency programs. The object of the cooperative work since 1922 has been to accomplish the control of the disease by providing pine owners with the expert advice, leadership, and supervision needed to secure prompt and effective local eradication of Ribes in the pine growing regions. The Government is primarily responsible for furnishing each cooperating state with one or more trained agents, who function as leaders in control work. In addition, the Government conducts experiments and demonstrations to improve control practices, obtains information on spread of the rust, and gives general supervision and regional leadership. Prior to the advent of the Government emergency work of 1933, all Federal cooperative expenditures were offset by state expenditures of at least equal amount. The cooperating state regulatory agencies are responsible for the following: (1) the administrative direction of the employees furnished by the Government; (2) cooperation with counties, townships, associations, and individuals in control work; (3) adequate supervision and checking of local eradication of Ribes to secure effective destruction of such bushes; and (4), enforcement of any necessary regulatory measures. The state extension services cooperate, wherever practicable, by making available such facilities of their organizations as will promote the control program.

In New England and New York, this program has been in successful operation since its adoption in 1922; but in Pennsylvania and New Jersey, the control activities were not organized on a similar basis until 1929. There were several reasons for restricting control activities outside New England and New York. The principal ones were the few introductions of diseased nursery stock from Europe, the relatively slow establishment and spread of the rust, the scattered distribution of the white pine, the passive public interest in forestry and lack of adequate state appropriations for control work. Hence, up to 1929, cooperative activities in the East outside New England and New York were limited to a small amount of scouting, nursery sanitation, eradication of new centers of infection, and to investigational and informational work. The natural spread of the disease during the past few years has greatly increased the infested area outside New England and New York. As a result, definite control programs have been adopted in Pennsylvania, New Jersey and other eastern states.

During 1933 and 1934, the regular cooperative work was necessarily curtailed due to the Emergency programs. The blister rust agents continued to supervise all control activities in their districts including protection work performed under the Emergency programs.

The 1934 activities of the permanent field personnel, except part-time employees, were devoted solely to blister rust control. In New Hampshire, two district agents spent only 3/4 of their time on control work. The state leader in Rhode Island was employed on a similar basis, while the state leader in New Jersey worked half time on blister rust control. In Vermont, two agents were transferred to other forestry work during November and December. The cost of these part-time men while on special forestry duties was paid from state money other than that allotted for the blister rust program.

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BLISTER RUST CONTROL ACTIVITIES IN NORTHEASTERN STATES

INFORMATIONAL AND SERVICE

Successful informational and service activities are essential to secure the cooperation of individuals and towns in the application of control measures. The informational features are used to create general and favorable attention, interest and desire; while the service work is required to obtain general, prompt, and effective cooperation.

The number of district agents in the cooperating states has not been uniform or constant; consequently, no satisfactory comparison can be made of the volume of the informational and service work performed in the different states, based on total figures. Table 3 indicates a general decrease in the use of informational features during the past few years. This is due to fewer agents being employed and to the fact that such activities have purposely not been emphasized as strongly as during the early years of the program. The control work has now reached a stage where the chief objective is to retain public interest in maintaining control and this can be accomplished with a reduced volume of informational features. During the past two years the agents activities, in connection with the E.C.W., P.W.A., and E.R.A. Programs, necessarily increased their supervisory work and resulted in a curtailment of the informational and service features, especially the latter. Such activities were also necessarily limited in many of the states because local cooperation was not solicited due to economic conditions and the policy of conducting control work - chiefly under the Emergency programs. In several of the states, the district agents spent most of their time on mapping work during the winter months of 1934.

In addition to the informational and service work performed by the permanent district blister rust control agents, the state leaders and temporary state assistants also carry on some activities of this nature. However, no records were kept by the Boston Office of the work in this respect, since these employees do not submit monthly reports of their own activities to this office.

Due to a revision of the record system, no record was kept after April 1934 of the number of publications distributed, number of mimeographed articles distributed, and number of posters and signs placed. Also, the initial interviews and follow-up calls were not classified after this date according to their purpose.

Summaries of the informational and service work performed by the district blister rust control agents in New England and New York during 1934, and for the period 1923-1934, inclusive, are given in tables 3 to 6.

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Summary of the informational and service work performed by the district district control agents in New England and New York during 1934, and for the period 1925-1934, inclusive, are given in tables 4 to 6.

Table 3.- Informational Activities Performed in Each of the Northeastern States During 1934 by the Permanent District Agents

State	Meetings Addressed		Field Demon. Meetings**		Displays Placed	Mimeo. Articles Distrib.*	Publications Distrib.*	Items Published	Posters and Signs Placed*
	No.	Attendance	No.	Attendance					
Maine	1	25	-	-	4	-	5	-	-
N. H.	26	6637	8	81	23	33	437	63	18
Vt.	-	-	-	-	3	-	375	8	20
Mass.	7	240	1	7	21	12	1775	13	-
R. I.	29	2225	-	-	14	-	910	44	-
N. Y.	30	1072	1	8	23	-	575	41	12
Totals	93	10,199	10	96	88	45	4,077	169	50

*No record kept of these items after April 30.

**Included with "Meetings addressed" after April 30.

In addition, temporary agents in Vermont and New York gave talks at two indoor meetings attended by 60 persons and to 6 individuals at one field demonstration meeting, published 13 news items, arranged 16 displays, placed 35 posters and signs, and distributed 200 publications.

Table 4.- Service Activities Performed in Each of the Northeastern States During 1934 by the Permanent District Agents

State	Initial Interviews	Follow-up Calls	Personal Instruction in Field (No. Individuals)
Maine	217	44	88
N. H.	898	863	537
Vt.	247	10	141
Mass.	897	234	264
R. I.	250	286	17
N. Y.	1545	1012	806
Totals	4054	2449	1853

In addition, temporary agents in Vermont and New York made 325 initial interviews, 218 follow-up calls and instructed 270 persons, other than blister rust control employees.

Table 3. - Informational Activities Performed in Each of the Northeastern States During 1934 by the Permanent District Agents

State	Meetings Addressed	No. Attendance	Field Demon. Meetings**	Displays Placed	Misc. Articles Distrib. *	Publications Distrib. *	Items Published	Posters and Signs Placed *
Maine	1	25	-	4	-	2	-	-
N. H.	25	687	81	27	37	477	87	15
Vt.	-	-	-	7	-	375	8	20
Mass.	7	240	7	21	15	1175	13	-
R. I.	29	2225	-	14	-	910	44	-
N. Y.	30	1075	8	27	-	575	47	15
Total	92	10,199	10	83	52	4,011	189	50

*No record kept of these items after April 30. **Included with "Meetings addressed" after April 30.

In addition, temporary agents in Vermont and New York gave talks at two indoor meetings attended by 60 persons and to 5 individuals at one field demonstration meeting; published 13 news items, arranged 15 displays; placed 35 posters and signs, and distributed 200 publications.

Table 4. - Service Activities Performed in Each of the Northeastern States During 1934 by the Permanent District Agents

State	Initial Interviews	Follow-up Calls	Personal Instruction in Field (No. Individuals)
Maine	217	44	88
N. H.	298	807	237
Vt.	247	10	141
Mass.	807	274	264
R. I.	250	288	17
N. Y.	1245	1075	308
Total	4054	2499	1257

In addition, temporary agents in Vermont and New York made 325 initial interviews, 218 follow-up calls and instructed 270 persons, other than blister trust control employees.

Table 5 - Summary, by States, of Informational and Service Activities Performed by Permanent and Temporary Blister Rust Control Agents in the North-eastern States During the Period 1923-1934, Inclusive.

Informational

State	Me.	N.H.	Vt.	Mass.	R.I.	Conn.	N.Y.	Totals
Meetings addressed	426	1,259	380	425	184	47	1,061	4,782
Attendance	25,770	120,320	18,242	27,791	15,704	1,940	85,444	241,211
Field dem. meetings	868	761	387	457	22	31	269	2,795
Attendance	4,950	3,574	4,556	3,302	1,243	607	4,582	28,120
Displays placed	908	1,735	553	683	96	117	483	4,575
Publications distributed	65,652	183,853	30,653	150,907	35,331	12,155	173,570	612,121
Mimeo. articles dist. (1928-1934)	4,846	64,465	192	2,445	2,350	91	3,595	77,884
Items published	574	3,589	457	2,011	731	641	2,157	9,810
Posters & signs placed	18,808	19,837	7,561	3,116	2,104	560	9,740	61,076
Roadside dem. placed (1930-1934)	104	32	16	106	3	24	8	207

In addition, during the period July 1 to December 31, 1922, the following general informational work was performed: 251 meetings addressed with an attendance of 29,163 persons, 335 field demonstration meetings attended by 1,732 individuals, 374 displays placed, 35,067 publications distributed, 313 items published and 2,500 posters and signs placed.

Service

State	Me.	N.H.	Vt.	Mass.	R.I.	Conn.	N.Y.	Totals
Initial interviews	27,978	26,662	9,980	30,954	3,027	4,076	22,577	124,714
Follow-up calls	9,316	23,265	6,672	10,673	2,472	3,033	17,362	72,791
Persons instructed in field	19,774	16,661	8,145	11,423	567	1,533	14,957	73,055

During the period July 1 to December 31, 1922, an additional 6,327 initial interviews and 1,924 follow-up calls were made, and 1,540 individuals received personal instructions in the field.

Table 6- Summary of Yearly Informational and Service Activities Performed by Permanent and Temporary Blister Rust Control Agents in New England and New York During Period 1923-1934, Inclusive.

Informational

Year	Meetings Addressed		Field Dem. Meetings		Displays Placed	Publications Dist.	Mimeo. Articles Dist.	Items Pub.	Posters & Signs Placed	Road Dem. Placed
	No.	Attendance	No.	Attendance						
1923	722	32,649	834	5,442	582	51,308	"	1,203	6,499	-
1924	707	47,071	792	4,050	647	55,696	"	1,269	9,553	-
1925	627	45,522	418	2,912	680	68,818	"	1,294	8,894	-
1926	490	33,082	210	5,018	624	76,697	"	1,202	8,056	-
1927	467	34,690	148	2,646	647	88,840	"	1,219	7,041	-
1928	363	21,178	159	2,809	492	62,708	14,953	1,109	7,268	-
1929	204	23,729	70	1,898	358	52,332	23,155	769	4,388	-
1930	144	8,275	44	1,022	215	48,124	20,715	518	3,445	127
1931	95	7,852	30	840	109	36,068	9,165	372	2,922	81
1932	233	18,107	38	571	67	39,562	6,416	340	1,758	54
1933	235	12,047	41	819	50	27,691	3,435	333	1,129	31
1934	95	10,259	11(1)	102	104	4,277(2)	45(2)	182	85(2)	-(3)
Total	4382	294,461	2,795	28,129	4,575	612,121	77,884	9,810	61,038	293

(1) Included with "Meetings Addressed" after April, 1934.

(2) No record kept of this item " " "

(3) Included with "Displays Placed" " " "

In addition, during the period July 1 to December 31, 1922, the following general informational work was performed: 251 meetings addressed with an attendance of 29,163 persons, 335 field demonstration meetings attended by 1,732 individuals, 374 displays placed, 35,067 publications distributed, 313 items published and 2,500 posters and signs placed.

Service

Year	Initial Interviews	Follow-Up Calls	Persons Instructed in Field
1923	14,724	5,555	4,274
1924	15,984	6,804	6,198
1925	13,819	7,380	11,169
1926	12,153	7,309	11,559
1927	13,120	8,228	13,102
1928	15,644	8,625	8,952
1929	9,013	6,503	6,741
1930	7,905	5,568	3,166
1931	5,789	5,440	2,070
1932	6,996	4,968	1,884
1933	4,788	3,744	1,818
1934	4,379	2,667	2,123
Totals	124,314	72,791	73,056

During the period July 1 to December 31, 1922, an additional 6,227 initial interviews and 1,924 follow-up calls were made, and 1,540 individuals received personal instruction in the field.

Table 6 - Summary of Weekly Informational and Service Activities Performed by Permanent and Temporary District Field Control Agents in New England and New York During Period 1927-1937, Inclusive.

Informational

Year	Meetings Addressed	No. Attendance	Field Dem. Meetings	No. Attendance	Displays Placed	Police Stations	Minimo. Articles Dist.	Items Imp.	Posters & Signs Placed	Board Dem. Placed
1927	152	35,642	24	5,442	252	21,308	-	1,203	6,400	-
1928	107	47,071	192	4,070	647	22,896	-	1,269	2,222	-
1929	237	42,722	418	5,212	680	28,818	-	1,294	8,224	-
1930	430	37,082	210	5,018	624	16,697	-	1,202	8,026	-
1931	467	34,690	148	5,846	647	22,840	-	1,219	7,047	-
1932	387	21,178	129	5,809	492	25,708	14,922	1,109	7,266	-
1933	204	27,729	70	1,898	328	22,712	22,122	769	4,388	-
1934	144	8,272	44	1,022	212	48,124	20,772	218	2,442	127
1935	92	7,822	30	840	109	36,028	9,122	372	2,922	21
1936	237	18,107	78	271	67	39,222	6,418	340	1,728	24
1937	237	12,047	41	219	20	27,697	2,422	222	1,129	21
1938	92	10,222	11(1)	102	104	4,277(S)	42(S)	122	22(S)	- (3)
Total	204,461	2,792,129	4,272	412,121	77,284	77,284	77,284	9,810	61,078	297

- (1) Included with "Meetings Addressed" after April, 1936.
 (2) No record kept of this item
 (3) Included with "Displays Placed"

In addition, during the period July 1 to December 31, 1932, the following general informational work was performed: 221 meetings addressed with an attendance of 29,167 persons, 372 field demonstration meetings attended by 1,732 individuals, 374 displays placed, 25,067 publications distributed, 212 items published and 2,200 posters and signs placed.

Service

Year	Initial Interviews	Follow-Up Calls	Persons Interviewed in Field
1927	14,724	2,722	4,274
1928	12,924	6,804	6,122
1929	17,819	7,380	11,169
1930	12,127	7,309	11,222
1931	17,120	2,222	17,102
1932	12,644	8,622	2,922
1933	2,012	6,202	6,741
1934	7,202	2,222	2,122
1935	2,729	2,440	2,070
1936	6,222	4,222	1,222
1937	4,722	2,744	1,712
1938	4,712	2,607	2,122
Total	124,724	72,721	72,022

During the period July 1 to December 31, 1932, an additional 6,222 initial interviews and 1,224 follow-up calls were made, and 1,240 individuals received personal instruction in the field.

COOPERATION

The informational and service activities have resulted in excellent public participation in blister rust control work, as evidenced by 40,459 individual cooperators expending \$472,070.60, and expenditures of \$464,389.70 from 1,685 town appropriations during the period 1918-1934, inclusive. These individuals actually furnished labor or the equivalent in money to eradicate the Ribes on their properties. Thousands of additional owners permitted the destruction of their cultivated bushes without compensation. In addition to the above direct cooperation, thousands of individuals gave general support or personal aid to the control program.

Individual cooperation in wild Ribes eradication has been solicited in all the Northeastern States. However, such efforts have been restricted in New Hampshire where the work is done chiefly in cooperation with towns, in Maine since 1930 for a similar reason, and in Rhode Island where, except during 1920, state funds have been used to pay the entire cost of the limited amount of necessary control work.

Town cooperation has been obtained chiefly in New Hampshire, Maine, and Connecticut. However, some town funds have also been secured in Vermont and Massachusetts. In New Hampshire, 1,129 town appropriations have made available \$359,700.00 for control work. This amount represents 76.5 per cent of the total town money raised in New England since 1918. Many of the New Hampshire towns have consistently made yearly appropriations until their entire pine areas have been protected. In fact, initial control work has been completed in 124 New Hampshire towns. The town money in New Hampshire and Connecticut is turned over to the respective states and expended with additional state funds to clear definite town blocks of Ribes, irrespective of property lines.

In Maine, town cooperation has been obtained since 1921; 513 town appropriations making available \$93,100.96 for control work. Up to 1931, this town money, except for a few thousand dollars, was used to employ town foremen who aided the individual owners in eradicating Ribes concentrations on their properties. A new state policy was inaugurated in Maine in 1931 whereby the town funds were used to employ crews, as in New Hampshire, and the control areas were systematically worked irrespective of property lines, the state paying one-third of the costs of eradicating the Ribes. The 14 town appropriations, totaling \$1,422.75 in Vermont, have been used chiefly to pay the excess labor cost of foremen working with individual owners; but in one instance, a part of the money was spent in eradicating the Ribes on a town forest. Town money was secured in Massachusetts only during 1920 and 1921, when four appropriations, totaling \$1,700 were made for control work in Berkshire County.

Individual expenditures for control work have decreased during the depression years since 1929 (Table 7). However, in 1932, during the worst year of the depression, owners actually expended more money on Ribes eradication than during the previous year. Town cooperation, on the other hand, reached high peaks in 1930 and 1931. There were decided decreases in the amounts of individual and town cooperation during 1933 and 1934 primarily due to the fact that such cooperation was not solicited in most of the states after the inauguration of the federal E.C.W. and P.W.A. programs.

Preliminary reports of blister rust appropriations made at town meetings in Maine and New Hampshire indicate the total amount of such money for 1935 will about equal the total sum available during the two previous years.

COOPERATION

The international and service activities have resulted in excellent participation in disaster relief work, as evidenced by \$40,459.70 in actual cooperative expenditures \$12,070.60, and expenditures of \$28,389.10 from 1929 town appropriations during the period 1918-1934, inclusive. These individuals actually furnished labor or the equivalent in money to eradicate the tides on their properties. Thousands of additional owners permitted the destruction of their cultivated lands without compensation. In addition to the above direct cooperation, thousands of individuals gave general support or personal aid to the control program.

Individual cooperation in wild tides eradication has been solicited in all the Northern States. However, such efforts have been restricted in New Hampshire where the work is done chiefly in cooperation with towns. In Maine since 1910 for a similar reason, and in Rhode Island where, except during 1920, state funds have been used to pay the entire cost of the limited amount of necessary control work.

Town cooperation has been obtained chiefly in New Hampshire, Maine, and Connecticut. However, some town funds have also been secured in Vermont and Massachusetts. In New Hampshire, 1,129 town appropriations have been made available \$359,700.00 for control work. This amount represents 76.5 per cent of the total town money raised in New England since 1918. Many of the New Hampshire towns have consistently made yearly appropriations until their entire pine areas have been protected. In fact, initial control work has been completed in 24 New Hampshire towns. The town money in New Hampshire and Connecticut is turned over to the respective states and expended with additional state funds to clear debris from blocks of tides, irrespective of property lines.

In Maine, town cooperation has been obtained since 1921; 213 town appropriations making available \$97,100.96 for control work. Up to 1931, this town money, except for a few thousand dollars, was used to employ town foremen who aided the individual owners in eradicating tides concentrations on their properties. A new state policy was inaugurated in Maine in 1931 whereby the town funds were used to employ crews, as in New Hampshire, and the control areas were systematically worked irrespective of property lines, the state paying one-third of the cost of eradicating the tides. The 14 town appropriations, totaling \$1,422.75 in Vermont, have been used chiefly to pay the excess labor cost of foremen working with individual owners; but in one instance, a part of the money was spent in eradicating the tides on a town forest. Town money was secured in Massachusetts only during 1920 and 1921, when four appropriations, totaling \$1,700 were made for control work in Berkshire County.

Individual expenditures for control work have decreased during the depression years since 1929 (Table V). However, in 1932, during the worst year of the depression, owners actually expended more money on tides eradication than during the previous year. Town cooperation, on the other hand, reached high peaks in 1930 and 1931. There were decided decreases in the amount of individual and town cooperation during 1933 and 1934 primarily due to the fact that such cooperation was not solicited in most of the states after the inauguration of the Federal F.C.W. and F.W.A. programs.

Preliminary reports of disaster relief appropriations made at town meetings in Maine and New Hampshire indicate the total amount of such money for 1935 will about equal the total available during the two previous years.

Table 7 .- Local Cooperation in Blister Rust Control Work in
Northeastern States, 1918-1934, Inclusive

Year	Individual Cooperation			Town Cooperation			County Cooperation	
	No. Cooperators		Amount Spent by Individual Cooperators	No. Town Appropri- ations	Amount Town Money		No. County Appropri- ations	Amount County Funds Expended
	Cult. Ribes Erad. Only	Wild & Cult. Ribes Erad.			Appropriated	Expended		
1918	-	19	\$ 4,188.63	43	\$ 7,200.00	\$ 5,029.11	-	-
1919	-	50	6,645.74	38	6,310.00	7,907.31	-	-
1920	-	152	8,498.78	51	8,675.00	7,992.09	-	-
1921	-	142	12,908.77	34	5,550.00	5,827.06	-	-
1922	-	971	28,035.13	58	20,598.29	18,448.62	-	-
1923	664	1,968	40,969.47	121	39,530.00	40,150.59	-	-
1924	1,714	3,050	44,622.07	151	48,429.25	48,898.50	-	-
1925	958	3,069	39,720.06	132	40,975.00	40,351.31	-	-
1926	741	3,283	44,254.88	123	40,425.00	41,223.95	-	-
1927	834	3,537	49,040.81	125	38,127.00	38,299.74	-	-
1928	991	3,390	54,667.68	143	41,117.00	39,038.73	-	-
1929	1,019	3,364	49,785.39	156	41,385.23	41,323.28	4	833.90
1930	971	2,419	32,999.65	186	48,143.50	46,880.12	3	1,112.10
1931	758	1,172	18,592.61	175	48,399.00	47,455.36	8	2,699.92
1932	313	1,488	19,509.18	81	19,217.09	19,575.96	6	1,252.88
1933	463	854	8,944.07	55	11,615.10	11,414.04	4	694.49
1934	1,331	774	8,687.68	13	4,574.00	4,573.93	5	881.35
Totals	10,757	29,702	\$472,070.60	1,685	\$470,279.46	\$464,389.70	30	\$7,474.64

In addition, 5 individuals in New Hampshire expended \$42.85 on control work during 1917.

County cooperation has been confined to New York. A small amount of county money was expended prior to 1929, but it was included with individual cooperation.

Table 7. - Local Cooperation in Blister Root Control Work in
Northeastern States, 1918-1934, inclusive

Year	Individual Cooperation		Town Cooperation		County Cooperation	
	No. Cooperators	Amount Spent	No. Towns	Amount Town Money Appropriated	No. Counties	Amount County Money Appropriated
1918	-	\$ 4,183.02	42	\$ 7,300.00	-	-
1919	-	8,648.74	38	8,310.00	-	-
1920	-	3,428.78	31	8,876.00	-	-
1921	-	12,908.77	34	8,880.00	-	-
1922	-	28,028.18	63	20,508.28	-	-
1923	884	40,988.47	181	38,580.00	-	-
1924	1,714	44,622.07	181	48,439.28	-	-
1925	988	38,720.08	133	40,976.00	-	-
1926	741	44,254.88	122	40,436.00	-	-
1927	824	42,040.81	126	38,127.00	-	-
1928	891	54,667.68	143	41,117.00	-	-
1929	1,018	48,786.28	128	41,288.28	4	832.34
1930	971	31,986.82	186	48,148.50	3	1,112.10
1931	786	18,592.61	178	48,308.00	8	2,602.07
1932	818	18,509.18	81	18,217.08	6	1,222.88
1933	463	8,844.07	28	11,616.10	4	634.44
1934	1,231	8,687.68	13	4,574.00	5	881.24
Totals	10,787	\$475,070.60	1,688	\$410,278.46	30	\$7,474.68

In addition, 3 individuals in New Hampshire expended \$42.50 on control work during 1917. County cooperation has been confined to New York. A small amount of county money was expended prior to 1929, but it was included with individual cooperation.

Table 8 .- Local Cooperation in Blister Rust Control Work in
Northeastern States

1934

State	Individual Cooperation			Town Cooperation		
	No. Cooperators		Amount Expended by Individual Cooperators	No. Town Appropri- ations	Amount Town Money	
	Cult. Ribes Erad. Only	Wild & Cult. Ribes Erad.			Appropriated	Expended
Me.	-	2	\$ 111.09	3	\$ 550.00	\$ 549.93
N.H.	-	-	-	8	2,100.00	2,100.00
Vt.	-	-	-	-	-	-
Mass.	1,331	587	4,814.75	-	-	-
R.I.	-	-	-	-	-	-
Conn.	-	1	29.40	2	1,924.00	1,924.00
N.Y.	-	180	3,545.64	-	-	-
Pa.	-	4	186.80	-	-	-
Totals	1,331	774	\$8,687.68	13	\$4,574.00	\$4,753.93

1922-1934

Me.	621	10,441	\$82,171.94	513	\$93,100.96	\$90,527.19
N.H.	-	536	38,904.11	967	333,665.00	331,797.14
Vt.	172	2,071	67,188.26	14	1,422.75	1,197.91
Mass.	9,757	10,021	85,674.49	-	-	-
R.I.	-	2	31.36	-	-	-
Conn.	195	289	7,983.69	25	14,346.75	14,111.89
N.Y.	-	5,757	156,321.20	-	-	-
Pa.	12	222	1,553.63	-	-	-
Totals	10,757	29,339	\$439,828.68	1,519	\$442,535.46	\$437,634.13

1918-1934

Me.	621	10,471	\$ 83,335.01	513	\$ 93,100.96	\$ 90,527.19
N.H.	-	678	47,001.67	1,129	359,700.00	356,853.49
Vt.	172	2,132	71,209.37	14	1,422.75	1,197.91
Mass.	9,757	10,102	91,658.59	4	1,700.00	1,699.22
R.I.	-	8	581.36	-	-	-
Conn.	195	291	8,383.69	25	14,346.75	14,111.89
N.Y.	-	5,798	168,347.28	-	-	-
Pa.	12	222	1,553.63	-	-	-
Totals	10,757	29,702	\$472,070.60	1,685	\$470,270.46	\$464,389.70

In addition, 5 individuals in New Hampshire expended \$42.85 on control work during 1917.

In New York, 30 county appropriations were made for control work during the period 1929 to 1934, inclusive. Expenditures from these sources totalled \$7,474.64. In 1934, such cooperation by 5 counties amounted to \$881.35.

Table 2. Local Cooperation in River Boat Control Work in
Northeastern States

1934

State	Individual Cooperation		Town Cooperation	
	No. Operators	Amount Expended	No. Town Appropriations	Amount Town Money Appropriated
Pa.	2	\$ 111.08	8	\$ 520.00
N.H.	-	-	8	2,100.00
Vt.	-	-	-	-
Mass.	587	4,814.75	-	-
N.I.	-	-	-	-
Conn.	1	22.40	2	1,324.00
N.Y.	180	3,345.64	-	-
Pa.	4	188.80	-	-
Totals	774	\$8,687.67	18	\$4,024.00

1933-1934

Pa.	631	10,441	213	\$33,100.96	\$30,527.13
N.H.	-	523	367	338,665.00	331,737.16
Vt.	172	2,071	14	1,422.75	1,104.91
Mass.	2,727	10,031	-	-	-
N.I.	-	2	-	-	-
Conn.	192	283	25	14,346.75	14,111.83
N.Y.	-	5,757	-	-	-
Pa.	12	223	-	-	-
Totals	10,783	29,380	1,319	\$445,825.46	\$437,634.12

1932-1933

Pa.	631	10,441	213	\$33,100.96	\$30,527.13
N.H.	-	578	1,129	229,700.00	228,822.49
Vt.	172	2,122	14	1,422.75	1,104.91
Mass.	2,727	10,102	4	1,700.00	1,682.23
N.I.	-	8	-	-	-
Conn.	192	291	25	14,346.75	14,111.83
N.Y.	-	5,757	-	-	-
Pa.	12	223	-	-	-
Totals	10,783	29,702	1,385	\$470,270.46	\$464,282.40

In addition, 5 individuals in New Hampshire expended \$42.38 on control work during 1937.

In New York, 50 county appropriations were made for control work during the period 1929 to 1934, inclusive. Expenditures from these sources totaled \$7,474.04. In 1934, such cooperation by 6 counties amounted to \$891.22.

RIBES ERADICATION

Experimental control work in New England and New York during the period 1918 - 1921, inclusive, resulted in 1,042,273 acres being cleared of 15,002,878 wild Ribes and 91,725 cultivated bushes at an average cost of 41 cents per acre. The cost per acre was reduced from 73 cents in 1918 to 24 cents in 1921. In the application of control measures during the present program from 1922 to 1934, inclusive, an additional area of 9,948,342 acres in the Northeastern States was eradicated of 116,976,673 wild and 557,348 cultivated Ribes at a per acre cost of 24.2 cents. This acreage, however, includes 1,562,000 acres reworked since 1922. Therefore, up to 1934, inclusive, control work has been conducted on 10,990,615 acres (pine areas and protection zones) on which 131,979,551 wild and 649,073 cultivated bushes have been destroyed at an average cost of 25.8 cents per acre. These data include the work performed under the Federal Emergency programs during 1933 and 1934, and the strictly Federal projects on National Forests and Parks in Maine, New Hampshire and Pennsylvania during the period 1924-1934, inclusive.

Special nursery sanitation work during the years 1930-1934, inclusive, when the data have been kept separate, resulted in an additional 114,684 acres being eradicated of 368,684 wild and 3,854 cultivated bushes. These nursery sanitation figures include 97,637 acres of re-eradication work. The special black currant eradication projects in Massachusetts, Rhode Island, Connecticut, and New York resulted in the elimination of an additional 91,792 Ribes nigrum and 43,053 other cultivated Ribes since 1927.

A summary of all work (regular cooperative, E.C.W., P.W.A., E.R.A., Federal projects on National Forests and Parks, nursery sanitation, and special black currant eradication projects) in the Northeastern States from 1918-1934, inclusive, shows that a total of 132,348,235 wild Ribes and 787,772 cultivated bushes have been destroyed. Excluding the special black currant work, 11,105,299 acres have been cleared of Ribes, including 1,599,637 acres of re-eradication work.

For convenience in analyzing the data, Ribes eradication is divided into three main divisions: namely, nursery sanitation, cultivated black currant elimination and Ribes eradication, other than nursery sanitation and cultivated black currant elimination. Each of these divisions is subdivided into four programs; regular cooperative, E.C.W., P.W.A., and E.R.A. Cultivated black currant elimination work was also conducted under the C.W.A. program.

RIBES ERADICATION OTHER THAN BLACK CURRANT ELIMINATION AND NURSERY SANITATION

REGULAR COOPERATIVE CONTROL PROGRAM

Regular cooperative control work, supervised by the permanent district agents, was conducted in all of the Northeastern States, except Vermont, Rhode Island and New Jersey during 1934. Projects under the Emergency Programs necessarily caused a curtailment in the regular cooperative control work. For this reason and because economic conditions had greatly reduced pine values and personal incomes, local cooperation was not solicited in some of the states. In fact, no concerted effort was made to obtain such cooperation in any of the Northeastern States. In spite of this, 13 towns in Maine, New Hampshire and Connecticut raised \$4753.93; 2,105 individuals, mostly in Massachusetts and New York, spent money or its equivalent in labor totalling \$8687.68; and five counties in New York raised \$881.35 for blister rust control work during 1934.

In summarizing the results of the 1934 control work, any state or local cooperative funds spent in conjunction with the Emergency Programs were included under the

RIBES ERADICATION

Experimental control work in New England and New York during the period 1918-1921, inclusive, resulted in 1,045,277 acres being cleared of 12,002,878 wild Ribes and 21,725 cultivated bushes at an average cost of 41 cents per acre. The cost per acre was reduced from 75 cents in 1918 to 24 cents in 1921. In the application of control measures during the present program from 1922 to 1934, inclusive, an additional area of 9,948,745 acres in the Northeastern States was eradicated of 116,976,673 wild and 257,348 cultivated Ribes at a per acre cost of 24.2 cents. This average, however, includes 1,262,000 acres reworked since 1922. Therefore, up to 1934, inclusive, control work has been conducted on 10,990,615 acres (pine areas and protection zones) on which 131,979,521 wild and 649,073 cultivated bushes have been destroyed at an average cost of 25.8 cents per acre. These data include the work performed under the Federal Emergency program during 1933 and 1934, and the strictly Federal projects in National Forests and Parks in Maine, New Hampshire and Pennsylvania during the period 1924-1934, inclusive.

Special nursery sanitation work during the years 1930-1934, inclusive, when the data have been kept separate, resulted in an additional 114,684 acres being eradicated of 368,684 wild and 7,824 cultivated bushes. These nursery sanitation figures include 97,637 acres of re-eradication work. The special black currant eradication projects in Massachusetts, Rhode Island, Connecticut, and New York resulted in the elimination of an additional 21,792 Ribes nigra and 47,023 other cultivated Ribes since 1927.

A summary of all work (regular cooperative, E.C.W., P.W.A., W.E.A., Federal projects on National Forests and Parks, nursery sanitation, and special black currant eradication projects) in the Northeastern States from 1918-1934, inclusive, shows that a total of 132,348,235 wild Ribes and 787,775 cultivated bushes have been destroyed. Excluding the special black currant work, 11,105,299 acres have been cleared of Ribes, including 1,239,637 acres of re-eradication work.

For convenience in analyzing the data, Ribes eradication is divided into three main divisions: namely, nursery sanitation, cultivated black currant elimination and Ribes eradication, other than nursery sanitation and cultivated black currant elimination. Each of these divisions is subdivided into four programs: regular cooperative, E.C.W., P.W.A., and W.E.A. Cultivated black currant elimination work was also conducted under the C.W.A. program.

RIBES ERADICATION OTHER THAN BLACK CURRANT ELIMINATION AND NURSERY SANITATION

REGULAR COOPERATIVE CONTROL PROGRAM

Regular cooperative control work, supervised by the permanent district agents, was conducted in all of the Northeastern States, except Vermont, Rhode Island and New Jersey during 1934. Projects under the Emergency Program necessarily caused a curtailment in the regular cooperative control work. For this reason and because economic conditions had greatly reduced pine values and personal incomes, local cooperation was not solicited in some of the states. In fact, no concerted effort was made to obtain such cooperation in any of the Northeastern States. In spite of this, 13 towns in Maine, New Hampshire and Connecticut raised \$4753.93; 2,102 individuals, mostly in Massachusetts and New York, spent money or its equivalent in labor totaling \$8687.52; and five counties in New York raised \$881.35 for blaster fuel control work during 1934.

In summarizing the results of the 1934 control work, any state or local cooperative funds spent in conjunction with the Emergency Program were included under the

respective program involved. Consequently, the results accomplished under the Regular Cooperative Program include only projects where state and local cooperative monies were spent entirely independent of any emergency funds. On this basis, the work under the Regular Cooperative Program includes expenditures of \$2649.93 by eleven towns in Maine and New Hampshire; \$3833.98 by 252 individual cooperators in Massachusetts, Connecticut and New York; \$881.35 by five counties in New York; and \$38,945.54 by the five states where such cooperative work was performed. As a result of the total expenditure of \$46,310.80 by all cooperating agencies, 147,194 acres were cleared of 2,144,445 wild Ribes and 2690 cultivated bushes at an average cost of 31.5 cents per acre. Nearly 60 percent of this work was re-eradication. The total acreage (147,194 acres) worked under the Regular Cooperative Program represents 18.1 percent of the total area cleared of Ribes in the Northeastern States during 1934.

Due to ^arevision of the record system beginning in 1934, no division was made of the results accomplished under the Regular Cooperative Program by classes of control work, namely: individual cooperation, town cooperation, state work on individuals' lands, and state work on public lands.

State		County		Town		Operator		Acres		Ribes		Bushes		Cost	
Maine		Androscoggin		Buxton		J. H. Smith		10		100		\$100.00			
New Hampshire		Rockingham		Durham		J. H. Smith		10		100		\$100.00			
Massachusetts		Middlesex		Boston		J. H. Smith		10		100		\$100.00			
Connecticut		Hartford		Hartford		J. H. Smith		10		100		\$100.00			
New York		Albany		Albany		J. H. Smith		10		100		\$100.00			
Total								50		500		\$500.00			

State		County		Town		Operator		Acres		Ribes		Bushes		Cost	
Maine		Androscoggin		Buxton		J. H. Smith		10		100		\$100.00			
New Hampshire		Rockingham		Durham		J. H. Smith		10		100		\$100.00			
Massachusetts		Middlesex		Boston		J. H. Smith		10		100		\$100.00			
Connecticut		Hartford		Hartford		J. H. Smith		10		100		\$100.00			
New York		Albany		Albany		J. H. Smith		10		100		\$100.00			
Total								50		500		\$500.00			

Notes: 1. Figures are preliminary and subject to change. 2. Figures are preliminary and subject to change. 3. Figures are preliminary and subject to change.

respective program involved. Consequently, the results accomplished under the Regular Cooperative Program include only projects where state and local cooperative monies were spent entirely independent of any emergency funds. On this basis, the work under the Regular Cooperative Program includes expenditures of \$284,925 by eleven towns in Maine and New Hampshire; \$383,925 by 222 individual cooperators in Massachusetts, Connecticut and New York; \$881.75 by five counties in New York; and \$12,045.75 by the five states where such cooperative work was performed. As a result of the total expenditure of \$46,710.80 by all cooperating agencies, 147,194 acres were cleared of 2,144,445 wild hives and 2690 cultivated bushes at an average cost of 31.5 cents per acre. Nearly 60 percent of this work was re-eradication. The total average (147,194 acres) worked under the Regular Cooperative Program represents 18.1 percent of the total area cleared of hives in the Northeast States during 1934.

Due to revision of the record system beginning in 1934, no division was made of the results accomplished under the Regular Cooperative Program by classes of control work, namely: individual cooperation, town cooperation, state work on individuals' lands, and state work on public lands. The results of the Regular Cooperative Program are summarized in the following table, which is based on the records maintained by the Northeast States during 1934. The results of the Regular Cooperative Program are summarized in the following table, which is based on the records maintained by the Northeast States during 1934.

A summary of all work done under the Regular Cooperative Program during 1934 is given in the following table, which is based on the records maintained by the Northeast States during 1934. The results of the Regular Cooperative Program are summarized in the following table, which is based on the records maintained by the Northeast States during 1934.

The summary of all work done under the Regular Cooperative Program during 1934 is given in the following table, which is based on the records maintained by the Northeast States during 1934. The results of the Regular Cooperative Program are summarized in the following table, which is based on the records maintained by the Northeast States during 1934.

THE REGULAR COOPERATIVE PROGRAM

The Regular Cooperative Program is a program of cooperation between the Northeast States and local cooperators for the purpose of eradicating wild hives and cultivated bushes. The program is based on the principle of cooperation between the Northeast States and local cooperators for the purpose of eradicating wild hives and cultivated bushes.

The Regular Cooperative Program is a program of cooperation between the Northeast States and local cooperators for the purpose of eradicating wild hives and cultivated bushes. The program is based on the principle of cooperation between the Northeast States and local cooperators for the purpose of eradicating wild hives and cultivated bushes.

Table 9- Summary of Ribes Eradication Work Performed Under Regular Cooperative Program in Northeastern States During 1934
(Excludes nursery sanitation and cultivated black currant elimination)

Initial Control Work

State	Acreage		Ribes Pulled		Total Man Days	Total Cost			Per Acre		
	Total Worked	Pine Protected	Wild	Cult.		Local Coop.	State	Total	Cost	Ribes	Man Days
Maine	3,208	1,070	17,726	-	149½	299.84	146.80	446.64	.139	5.5	.05
N. H.	23,259	12,100	1,286,187	8	4070	800.00	12,557.91	13,357.91	.574	55.3	.17
Mass.	117	15	105	-	4½	-	26.36	26.36	.225	0.9	.04
N. Y.	38,029	13,756	312,999	1736	3106	2,159.48	11,388.21	13,547.69	.356	8.2	.08
Penna.	411	70	42,627	-	118	-	366.70	366.70	.892	103.7	.29
All States	65,024	27,011	1,659,644	1744	7448	3,259.32	24,485.98	27,745.30	.427	25.5	.11

Re-Eradication Work

Maine	10,334	5,167	18,558	28	197½	349.93	174.97	524.90	.051	1.8	.02
N. H.	5,605	2,895	107,083	-	647	1,300.00	537.05	1,837.05	.328	19.1	.12
Mass.	22,483	6,835	28,200	327	420	159.10	1,659.29	1,818.39	.081	1.3	.02
Conn.	1,824	479	52,116	-	454½	29.40	1,871.81	1,901.21	1.04	28.6	.25
N. Y.	38,720	14,034	85,025	584	2307½	2,267.51	7,522.52	9,790.03	.253	2.2	.06
Penna.	3,204	527	193,819	7	814	-	2,693.92	2,693.92	.841	60.5	.25
All States	82,170	29,937	484,801	946	4840½	4,105.94	14,459.56	18,565.50	.226	5.9	.06

Initial and Re-Eradication

Maine	13,542	6,237	36,284	28	347	649.77	321.77	971.54	.072	2.7	.03
N. H.	28,864	14,995	1,393,270	8	4717	2,100.00	13,094.96	15,194.96	.526	48.3	.16
Mass.	22,600	6,850	28,305	327	424½	159.10	1,685.65	1,844.75	.082	1.3	.02
Conn.	1,824	479	52,116	-	454½	29.40	1,871.81	1,901.21	1.04	28.6	.25
N. Y.	76,749	27,790	398,024	2320	5413½	4,426.99	18,910.73	23,337.72	.304	5.2	.07
Penna.	3,615	597	236,446	7	932	-	3,060.62	3,060.62	.847	65.4	.26
All States	147,194	56,948	2,144,445	2690	12,288½	7,365.26	38,945.54	46,310.80	.315	14.6	.08

Basis of costs:

Actual cost or value of owners' labor, usually figured at 40¢ per hour; state labor, scouts, and crew foremen while engaged in locating and pulling Ribes; cost of crew transportation and miscellaneous expenses for trail paper, picks, etc.

Summary of Ribes Translocation Work Performed Under Weenier Cooperative Program in Northeastern States During 1939
(Excludes nursery sanitation and collected black currant elimination)

Initial Control Work

State	Acres		Ribes Filled		Total Cost		Per Acre	
	Total	Pro- tested	Wild	Coll.	Total	State	Total	Cost Three Men
Maine	7,208	1,070	17,158	-	199.84	146.80	446.64	1.77
N. H.	27,252	12,100	1,566,181	8	800.00	12,257.91	13,357.91	2.74
Mass.	117	12	102	-	-	28.38	28.38	0.00
N. Y.	38,059	12,750	315,993	175	3108	2,152.42	11,388.21	13,540.63
Tenn.	411	10	45,867	-	118	386.70	386.70	0.92
All								
States	62,054	27,011	1,629,644	174	1,229.12	54,482.98	27,742.30	457.22

Re-Translocation Work

Maine	10,734	2,167	18,258	28	1974	342.22	174.97	254.90	1.8.08
N. H.	2,602	2,222	107,037	-	247	1,300.00	227.02	1,877.02	1.3.13
Mass.	22,483	6,372	28,200	327	450	152.10	1,629.29	1,818.39	1.3.08
Conn.	1,824	479	25,112	-	444	22.40	1,871.81	1,901.21	1.04
N. Y.	38,750	14,034	67,022	254	2707	2,567.21	1,222.22	2,790.07	2.2.06
Tenn.	7,204	227	127,819	7	818	-	2,627.92	2,627.92	0.8.21
All									
States	82,170	29,927	424,801	346	4404	4,102.94	14,429.26	18,522.20	2.9.08

Initial and Re-Translocation

Maine	17,242	6,237	35,284	28	1974	649.77	351.77	971.84	2.7.07
N. H.	28,854	14,922	1,321,570	8	477	2,100.00	17,094.96	17,104.96	48.3.10
Mass.	22,500	6,870	28,302	327	454	152.10	1,629.29	1,844.12	1.3.08
Conn.	1,824	479	25,112	-	444	22.40	1,871.81	1,901.21	1.04
N. Y.	38,749	27,700	398,024	2750	2717	4,456.99	18,910.77	23,331.12	2.2.07
Tenn.	7,212	227	127,446	7	825	3,080.62	3,080.62	3,080.62	0.8.21
All									
States	147,194	59,942	2,144,442	3500	12,282	7,362.26	38,942.24	46,310.80	14.6.08

Basis of costs:

Actual cost on value of owner's labor, usually figured at \$4.00 per hour; state labor, seeds, and crew foreman while engaged in locating and pulling Ribes; cost of crew transportation and miscellaneous expenses for fuel, paper, picks, etc.

The results accomplished under the Regular Cooperative Program during 1934 were materially reduced by including state and local cooperative expenditures in conjunction with the emergency programs, with the results accomplished under the respective emergency program. Consequently, no satisfactory comparison can be made between the 1933 and 1934 activities under the Regular Cooperative Program. However, on the basis the data are summarized, the percentage of increase or decrease for the various items during 1934 as compared with the previous year were as follows: total acreage worked, -48.1%; wild Ribes pulled, -44.2%; cultivated Ribes destroyed, -63.4%; total cost, -75.0%; cost per acre, +20.7%; and Ribes per acre, +8.1%.

In New Hampshire, the \$2100.00 made available by 8 town appropriations was turned over to the state and used to employ crews to eradicate Ribes in definite blocks irrespective of property lines. State blister rust appropriation funds totaling \$1021.63 were used on these town projects. Strictly state projects were also conducted in 18 additional towns under a state emergency relief program, \$10,132.72 relief money and \$1940.61 blister rust control appropriation funds being expended.

The low per acre costs of the 1934 work in Maine and Massachusetts are due to considerable scout work being performed in areas containing relatively few Ribes. The average number of such bushes pulled per acre on all work (mostly re-eradication) under the Regular Cooperative Program in these two states was 2.7 and 1.3 respectively.

All of the 1934 control work under this program in Connecticut was re-eradication. It was confined chiefly to areas where Ribes had originally been abundant. The per acre cost of \$1.04 appears excessive since only 28.6 bushes per acre were destroyed. It may in part be due to the fact that welfare labor was used.

The results accomplished under the Regular Cooperative Program during 1934 were materially improved by including state and local cooperative expenditures in conjunction with the emergency program, with the results accomplished under the Regular Cooperative Program. Consequently, no satisfactory comparison can be made between the 1933 and 1934 activities under the Regular Cooperative Program. However, on the basis the data are summarized, the percentage of increase or decrease for the various items during 1934 as compared with the previous year were as follows: total acreage worked, -48.1%; wild rice pulled, -44.2%; cultivated rice destroyed, -57.4%; total cost, -15.0%; cost per acre, +20.7%; and Rice per acre, +8.1%.

In New Hampshire, the \$2100.00 made available by 8 town appropriations was turned over to the state and used to employ crews to eradicate Rices in definite blocks irrespective of property lines. State disaster relief appropriation funds totaling \$1021.67 were used in these town projects. Entirely state projects were also conducted in 18 additional towns under a state emergency relief program. \$10,132.76 relief money and \$10,000.00 disaster relief appropriation funds being expended.

The low per acre costs of the 1934 work in Maine and Massachusetts are due to considerable work being performed in areas containing relatively few Rices. The average number of such bushes pulled per acre on all work (mostly re-eradication) under the Regular Cooperative Program in these two states was 2.7 and 1.7 respectively.

All of the 1934 control work under this program in Connecticut was re-eradication. It was confined chiefly to areas where Rices had originally been abundant. The per acre cost of \$1.00 appears excessive since only 25.0 bushes per acre were destroyed. It may in part be due to the fact that welfare labor was used.

Table 10. -

Classification of Blister Rust Control Funds Used on Project "Ribes Eradication"
Under Regular Cooperative Program in Northeastern States During 1934
(Excludes nursery sanitation and cultivated black currant elimination)

State	Individuals	Towns	Counties	State B.R. Appropriation	Other State Funds	Total
Maine	99.84	549.93	-	321.77	-	971.54
N. H.	-	2100.00	-	2962.24	10,132.72	15,194.96
Mass.	159.10	-	-	1685.65	-	1,844.75
Conn.	29.40	-	-	1871.81	-	1,901.21
N. Y.	3545.64	-	881.35	18,806.33	104.40	23,337.72
Penna.	-	-	-	3060.62	-	3,060.62
Totals	3833.98	2649.93	881.35	28,708.42	10,237.12	46,310.80

The total cost of Ribes eradication work under the Regular Cooperative Program represents 10.0 % of total expenditure for this project under all programs in the Northeastern States during 1934.

Percentage of Total Expenditures For Ribes Eradication Work
Under Regular Cooperative Program Derived From Various Sources

State	Individuals	Towns	Counties	State B.R. Appropriation	Other State Funds	Total
Maine	10.3	56.6	-	33.1	-	100.0
N. H.	-	13.8	-	19.5	66.7	100.0
Mass.	8.6	-	-	91.4	-	100.0
Conn.	1.5	-	-	98.5	-	100.0
N. Y.	15.2	-	3.8	80.6	0.4	100.0
Penna.	-	-	-	100.0	-	100.0
Totals	8.3	5.7	1.9	62.0	22.1	100.0

Classification of Blister Beet Control Funds Used on Project "Ribes eradication" Under Federal Cooperative Program in Northeastern States During 1934 (Excludes nursery sanitation and cultivated black currant elimination)

State	Individuals	Towns	Counties	State B.R. Appropriation	Other State Funds	Total
Maine	99.84	749.97	-	351.77	-	1151.58
N. H.	-	2100.00	-	2962.84	10,172.78	12,935.62
Mass.	152.10	-	-	1667.65	-	1,819.75
Conn.	52.40	-	-	1871.81	-	1,924.21
N. Y.	3442.64	-	481.35	18,806.77	104.40	23,375.16
Penn.	-	-	-	7060.63	-	7,060.63
Totals	3837.94	2649.97	481.35	28,106.12	10,277.18	46,310.80

The total cost of Ribes eradication work under the Federal Cooperative Program represents 10.3% of total expenditures for this project under all programs in the Northeastern States during 1934.

Percentage of Total Expenditures for Ribes Eradication Work Under Federal Cooperative Program Derived from Various Sources

State	Individuals	Towns	Counties	State B.R. Appropriation	Other State Funds	Total
Maine	10.1	56.6	-	37.1	-	100.0
N. H.	-	17.8	-	19.5	62.7	100.0
Mass.	8.6	-	-	91.4	-	100.0
Conn.	1.5	-	-	98.5	-	100.0
N. Y.	15.2	-	3.3	80.6	0.4	100.0
Penn.	-	-	-	100.0	-	100.0
Totals	8.3	5.1	1.9	65.0	22.1	100.0

Table 11 - Summary of Initial and Re-eradication Work Performed under the Regular Cooperative Program in the Northeastern States during each Year of the Period 1918 to 1974 Inclusive

Year	Acreage Examined	Ribes Pulled		Cost					Per Acre		
		Wild	Cult.	Indiv.	Towns	State	Gov't.	Counties	Total	Cost	Ribes
1918	137,458	2,413,887	22,159	4,133.63	5,029.11	36,970.29	33,675.37	-	99,863.40	.727	17.6
1919	252,043	4,549,948	27,877	6,645.74	7,907.31	45,871.64	79,075.87	-	139,500.56	.553	19.1
1920	270,318	4,791,910	25,976	8,193.78	7,992.09	18,403.73	58,768.14	-	92,662.74	.346	15.2
1921	332,074	3,737,103	15,762	12,003.77	5,827.05	38,886.52	35,263.61	-	92,885.96	.243	9.8
Sub-Total											
1918-1921	1,042,273	15,002,878	91,725	32,241.92	26,755.57	140,172.13	225,782.99	-	425,912.66	.409	14.4
1922	475,217	4,849,312	16,061	28,035.13	16,898.68	48,653.94	3,200.92	-	96,818.65	.204	10.2
1923	592,639	7,939,917	55,074	40,969.47	40,150.59	76,951.28	2,812.53	-	160,887.87	.183	8.9
1924	1,012,956	9,527,787	73,858	44,622.07	48,898.50	71,804.15	4,603.18	-	169,927.90	.168	8.4
1925	834,894	7,346,289	59,458	39,720.06	40,351.31	56,251.26	2,479.86	-	138,802.49	.165	8.8
1926	815,187	8,858,071	51,471	44,172.88	41,227.95	60,304.66	2,876.34	-	148,577.83	.182	10.9
1927	899,852	8,046,826	49,745	49,040.81	38,299.74	64,765.56	3,512.44	-	155,618.55	.173	8.9
1928	823,712	6,680,001	60,561	54,667.68	39,038.73	62,729.47	3,311.52	-	161,347.40	.183	7.6
1929	972,787	7,666,830	76,450	49,785.79	41,727.28	82,972.66	4,127.81	811.90	179,047.04	.192	8.2
1930	712,229	8,136,105	30,962	31,130.24	46,880.12	72,270.65	8,272.84	112.16	159,665.95	.224	11.5
1931	578,291	7,174,121	21,978	17,746.57	47,455.76	85,896.02	6,041.97	693.92	159,379.84	.276	12.4
1932	504,650	4,786,726	25,091	16,117.90	19,538.27	75,448.22	7,630.12	222.83	124,987.41	.239	8.7
1933	237,514	3,125,573	7,762	8,472.67	11,145.59	52,723.27	1,700.77	594.45	74,761.70	.232	17.6
1934	117,124	2,140,005	2,690	7,877.98	2,649.07	38,945.54	-	881.79	46,710.80	.315	14.6
Sub-Total											
1922-1974	9,017,122	87,032,137	570,779	470,710.85	433,624.01	854,351.68	50,109.71	474,647	1,776,121.52	.197	9.7
Totals	10,055,795	102,085,011	622,464	462,552.77	460,679.58	994,483.86	276,887.33	474,647	2,02,074.18	.210	10.2

Basis of costs:

Includes actual cost or value of owners' labor, usually figured at 40¢ per hour; other laborers, scouts, and crew foremen while engaged in locating and pulling Ribes; cost of crew transportation and miscellaneous expenses for trail paper, picks, etc.

expenses for party Deeds, Dyer, etc.
 any case taken after evidence of police and other persons and witnesses
 included against case on line of cases, report, receipt, and other reports, records.

Table of Cases:

Case No.		Date		Description		Status		Remarks	

Table 12- Summary of Initial and Re-eradication Work Performed under the Regular Cooperative Program in each of the Northeastern States.

1922-1934 Inclusive

State	Acreage Examined	Ribes Pulled		Indiv.	Towns	State	Cost		Counties	Total	Per Acre	
		Wild	Cult.								Cost	Ribes
Maine	2,641,758	19,828,973	118,248	80,859.12	89,669.01	24,855.68	35,026.86		-	230,410.67	.087	7.5
N. H.	2,543,637	33,198,542	82,850	38,731.83	330,949.20	129,037.51	1,547.25		-	500,265.79	.197	13.1
Vt.	206,548	2,023,946	10,837	67,102.01	1,077.91	11,281.17	1,073.71		-	80,534.80	.390	9.8
Mass.	2,136,072	11,394,810	236,063	78,965.09	-	194,732.53	1,279.75		-	274,977.37	.129	5.3
R. I.	186,803	119,233	8,105	31.36	-	13,612.64	1,832.80		-	15,476.80	.083	0.6
Conn.	252,241	1,934,451	22,274	7,146.08	12,187.89	42,327.15	7,242.35		-	68,903.47	.273	7.7
N. Y.	972,093	15,360,135	46,860	156,108.53	-	404,292.64	15.00		7,474.64	567,890.81	.584	15.8
Penna.	73,970	3,222,043	5,502	1,366.83	-	34,212.36	2,082.62		-	37,661.81	.509	43.6
Totals	9,013,122	87,082,133	530,739	430,310.85	433,884.01	854,351.68	50,100.34		7,474.64	1,776,121.52	.197	9.7

1918-1934 Inclusive

State	Acreage Examined	Ribes Pulled		Indiv.	Towns	State	Cost		Counties	Total	Per Acre	
		Wild	Cult.								Cost	Ribes
Maine	2,822,388	20,487,702	119,827	82,022.19	89,669.01	30,911.51	47,516.10		-	250,118.81	.089	7.3
N. H.	3,114,542	39,534,232	144,367	46,829.39	356,005.55	157,639.14	60,932.25		-	621,406.33	.200	12.7
Vt.	224,526	2,296,089	11,119	71,123.12	1,077.91	16,439.13	6,147.15		-	94,787.31	.422	10.2
Mass.	2,217,949	13,809,683	246,408	84,949.19	1,699.22	209,896.93	23,106.93		-	319,652.27	.144	6.2
R. I.	290,064	200,475	12,356	581.36	-	21,064.21	10,592.78		-	32,238.35	.111	0.7
Conn.	265,711	2,059,714	22,282	7,546.08	12,187.89	46,940.17	9,591.44		-	76,265.58	.287	7.8
N. Y.	1,046,245	20,475,073	60,603	168,134.61	-	477,380.41	116,914.06		7,474.64	769,903.72	.736	19.6
Penna.	73,970	3,222,043	5,502	1,366.83	-	34,212.36	2,082.62		-	37,661.81	.509	43.6
All States	10,055,395	102,085,011	622,464	462,552.77	460,639.58	994,483.86	276,883.33		7,474.64	2,202,034.18	.219	10.2

Basis of costs: See Page 21.

REPORT ON THE 1960-61 FISHING SURVEY OF THE NEW ZEALAND FISHERIES DEPARTMENT
 1. SUMMARY OF RESULTS

1. SUMMARY OF RESULTS

STATION	DATE	FISH			TOTAL		SPECIES		REMARKS
		NO.	WT.	LEN.	NO.	WT.	NO.	WT.	
1.1	1960	10.014.073	-	22.330.25	10.228.45	10.228.45	10.228.45	10.228.45	10.228.45
1.1	1961	17.235.003	-	25.145.1	15.170.631	15.170.631	15.170.631	15.170.631	15.170.631
1.2	1961	08.472.08	-	17.110.1	11.135.11	11.135.11	11.135.11	11.135.11	11.135.11
1.3	1961	17.172.473	-	21.915.1	17.877.491	17.877.491	17.877.491	17.877.491	17.877.491
1.4	1960	08.074.21	-	08.518.1	40.518.1	40.518.1	40.518.1	40.518.1	40.518.1
1.5	1961	14.102.20	-	21.948.1	21.157.54	21.157.54	21.157.54	21.157.54	21.157.54
1.6	1961	12.098.123	40.474.1	100.21	40.595.404	40.595.404	40.595.404	40.595.404	40.595.404
1.7	1961	13.103.11	-	50.580.5	05.515.45	05.515.45	05.515.45	05.515.45	05.515.45
1.8	1961	15.151.21.1.42.474.1	47.001.02	10.127.433	10.127.433	10.127.433	10.127.433	10.127.433	10.127.433

2. SUMMARY OF RESULTS

STATION	DATE	FISH			TOTAL		SPECIES		REMARKS
		NO.	WT.	LEN.	NO.	WT.	NO.	WT.	
1.1	1960	18.111.025	-	01.012.14	12.112.07	10.228.45	10.228.45	10.228.45	10.228.45
1.2	1961	17.204.156	-	35.572.02	41.973.721	35.572.02	35.572.02	35.572.02	35.572.02
1.3	1961	17.181.42	-	21.141.3	11.974.31	11.974.31	11.974.31	11.974.31	11.974.31
1.4	1961	15.520.917	-	19.001.15	19.228.905	19.228.905	19.228.905	19.228.905	19.228.905
1.5	1961	25.815.57	-	37.922.01	15.430.15	15.430.15	15.430.15	15.430.15	15.430.15
1.6	1961	22.205.37	-	44.122.2	11.042.34	11.042.34	11.042.34	11.042.34	11.042.34
1.7	1961	17.102.927	40.474.1	100.21	40.595.404	40.595.404	40.595.404	40.595.404	40.595.404
1.8	1961	18.103.11	-	50.580.5	05.515.45	05.515.45	05.515.45	05.515.45	05.515.45
1.9	1961	15.151.21.1.42.474.1	47.001.02	10.127.433	10.127.433	10.127.433	10.127.433	10.127.433	10.127.433

Base of coast 15 200 200 200 200 200 200 200 200 200

FEDERAL PROJECTS ON GOVERNMENT LANDS
(Regular Cooperative Program)

Control measures are being applied on the white pine areas in the National Forests and Parks in the Northeastern States where the pine is of sufficient value to justify the cost of protection. Up to 1933, such work was conducted as a strictly federal project, the Bureau of Plant Industry cooperating with the National Forest and Park Services. With the exception of a small project in 1933 on the Allegheny National Forest, all control work on Government owned lands in the Northeastern States during the past two years has been performed under the E.C.W. program.

The project at Acadia National Park in Maine was begun in 1929 and has been continued each succeeding year. All control work at this Park during 1933 and 1934 was performed by crews from the two C.C.C. camps on Mount Desert Island. The initial control project on this Park is practically completed and a start has been made on the re-eradication program. Plans have been made to continue the work with E.C.W. labor during 1935.

With the exception of recent acquisitions, all white pine areas on the White Mountain National Forest have been given initial protection. The work was conducted as a strictly federal project during the period 1924-1931, inclusive, while in 1933 and 1934 only E.C.W. personnel was used on the project. A program has been developed for continuing the E.C.W. work during 1935.

On the Allegheny National Forest in Pennsylvania, the Hearts Content tract was initially cleared of Ribes in 1929. The entire control area of 461 acres was re-examined for Ribes in 1931, and the most likely Ribes sites, totalling 166 acres, were reworked again in 1933. During 1932, an area of 135 acres known as the Hazelwood Oil Company tract was given initial protection, while in 1933 two additional pine areas at Kelly Pines and Sandstone Springs camp sites were initially cleared of Ribes. E.C.W. crews only were used on control work in 1934, when initial protection was extended to two additional areas, one at Hoffman Field camp ground and another near Endeavor. Control work will be continued with C.C.C. personnel during 1935, when any necessary reeradication work will be performed and pine areas on recently acquired lands given initial protection.

Table 13- Summary of Ribes Eradication Work on Federal Lands
In Connection With Regular Cooperative Program, 1924-1933, Inclusive
(Data included in preceding summaries of control work under Regular Cooperative Program)

Project	Type of Work	Acreage Examined	Ribes Pulled		Cost					Per Acre	
			Wild	Cult.	B.P.I.	State	Forest Service	Park Service	Total	Cost	Ribes
Acadia National Park, Me.	All Initial	7,726	503,920	-	\$3145.83	-	-	\$8345.53	\$11,491.36	1.49	65.2
White Mt. National Forest, NH	All Initial	6,779	182,493	-	75.63	224.11	1471.62	-	1,771.36	.261	26.9
Allegheny National Forest, Pa.	Initial	891	129,019	8	136.56	-	507.71	-	644.27	.723	144.8
	Re-Erad.	627	19,993	-	71.29	-	272.06	-	343.35	.548	31.9
	Total	1,518	149,012	8	207.85	-	779.77	-	987.62	.651	98.2
Total	Initial	15,396	815,432	8	3358.02	224.11	1979.33	8345.53	13,906.99	.903	53.0
	Re-Erad.	627	19,993	-	71.29	-	272.06	-	343.35	.548	31.9
	Total	16,023	835,425	8	\$3429.31	\$224.11	\$2251.39	\$8345.53	\$14,250.34	.889	52.1

The control work performed on federal lands under the E.C.W. program is summarized in Table 21, and a summary of all work (under regular and E.C.W. programs) is given in Table 33.

FEDERAL PROJECTS ON GOVERNMENT LANDS
(Regular Cooperative Program)

Control measures are being applied on the white pine areas in the National Forests and Parks in the Northeastern States where the pine is of sufficient value to justify the cost of protection. Up to 1935, such work was conducted as a strictly Federal project. The Bureau of Plant Industry cooperating with the National Forest and Park Service. With the exception of a small project in 1935 on the Allegheny National Forest, all control work on Government owned lands in the Northeastern States during the past two years has been performed under the E.C.W. program.

The project at Acadia National Park in Maine was begun in 1929 and has been continued each succeeding year. All control work at this Park during 1935 and 1936 was performed by crews from the two E.C.W. camps on Mount Desert Island. The initial control project on this Park is practically completed and a start has been made on the re-eradication program. Plans have been made to continue the work with E.C.W. labor during 1937.

With the exception of recent acquisitions, all white pine areas on the White Mountain National Forest have been given initial protection. The work was conducted as a strictly Federal project during the period 1924-1931, inclusive, while in 1932 and 1934 only E.C.W. personnel was used on the project. A program has been developed for continuing the E.C.W. work during 1935.

On the Allegheny National Forest in Pennsylvania, the Herkese Continent tract was initially cleared of Ribes in 1929. The entire control area of 461 acres was re-examined for Ribes in 1931, and the most likely Ribes sites, totaling 166 acres, were reworked again in 1935. During 1935, an area of 135 acres known as the Kesselwood Oil Company tract was given initial protection, while in 1937 two additional pine areas at Kelly Pines and Sandstone Springs camp sites were initially cleared of Ribes. E.C.W. crews only were used on control work in 1934, when initial protection was extended to two additional areas, one at Hoffman Field camp ground and another near Hahoevor. Control work will be continued with E.C.W. personnel during 1935, when any necessary reeradication work will be performed and pine areas on recently acquired lands given initial protection.

Table 1 - Summary of Ribes Eradication Work on Federal Lands
In Connection With Regular Cooperative Program, 1924-1935, inclusive
(Data included in preceding summaries of control work under Regular Cooperative Program)

Project	Type of Work	Acres Examined	Ribes Killed		E.C.W. Cost	Forest Service Service	Total	Per Acre	
			Wild	Cult.				Cost	Ribes
Acadia National Park, Me.	All Initial	7,756	501,920	-	371,452.87	-	371,452.87	1.49	65.3
White Mt. National Forest, N.H.	All Initial	6,779	182,492	-	12,623	234,111	246,734	1.77	36.9
Allegheny National Forest, Pa.	Initial	831	120,014	3	135.38	507.11	642.49	1.23	144.3
Allegheny National Forest, Pa.	Re-Exam.	607	19,994	-	11.29	376.06	387.35	1.48	31.9
Allegheny National Forest, Pa.	Total	1,438	139,012	3	207.85	119.17	326.02	1.35	98.2
Allegheny National Forest, Pa.	Initial	15,196	412,438	3	3758.05	524,111	926,549	12.30	53.0
Allegheny National Forest, Pa.	Re-Exam.	607	19,994	-	11.29	376.06	387.35	1.48	31.9
Total	Total	16,803	632,432	6	4182.27	11,234.34	15,416.61	2.89	52.1

The control work performed on Federal lands under the E.C.W. program is summarized in Table 1, and a summary of all work (under regular and E.C.W. programs) is given in Table 2.

E.C.W. CONTROL PROGRAM

Blister rust control was continued under the E. C. W. program in the Northeastern States during 1934. As during the previous year, the work was confined chiefly to Ribes concentrations. Control work on many of these areas had been prevented formerly either by lack of cooperation or because the cost of eradicating the existing Ribes was excessive under ordinary conditions. Ribes eradication was especially adapted to the E.C.W. program since the work required chiefly manual labor and only a small expenditure for equipment.

During 1934, Ribes eradication was conducted from a total of 125 C.C.C. camps in the Northeastern States. (See Table 14.) Four of these camps were located on the White Mountain National Forest, two at Acadia National Park, two at the Allegheny National Forest, and the other 117 were state camps scattered over the forest region of the Northeastern States. Control work was limited to public lands in Pennsylvania and Massachusetts. In the other states, Ribes eradication was performed on both public and private lands, about 90 percent of the acreage worked under this program in these latter states being on individually-owned property.

The number of enlisted men employed on control work necessarily varied from day to day, the maximum number of men at any one time being 2483. Four of the New York camps were devoted chiefly to Ribes eradication work from May to September, and two other New York camps had 67 and 76 men respectively assigned to control work during this period. In Maine, an average of 86 men worked out of one camp and 57 out of another. The number of enlisted men assigned to blister rust control from each of the other 117 camps ranged from an average of 5 to 43 men per day. The field activities of these laborers were directed by 287 foremen and checkers. This combined force was supervised by the regular permanent blister rust control personnel consisting of state leaders and district agents provided by the Division of Plant Disease Control. All but 5 of the 30 district men supervised such work.

Table 14- Distribution of Work and Personnel Employed on E. C. W.
Ribes Eradication Projects in Northeastern States, 1933 and 1934

State	No. C.C. Camps				No. Towns Where Control Work Performed		Period Work Performed		Personnel Employed			
	State		Federal		1933	1934	1933	1934	Ave. No. Enlisted * Men Per Day		No. Technical Foremen & Checkers	
	1933	1934	1933	1934					1933	1934	1933	1934
Maine	3	3	3	3	13	16	5/29-9/29	5/7-9/21	235	190	47	35
N. H.	5	5	4	3	33	19	6/1-9/22	5/1-9/15	247	122	42	20
Vt.	6	6	1	-	17	14	6/20-9/15	5/4-9/15	68	110	15	9
Mass.	12	9	-	-	17	15	7/1-9/30	5/6-9/29	45	58	8	9
R. I.	3	2	-	-	3	2	6/1-9/30	5/1-10/16	28	62	4	5
Conn.	7	8	-	-	19	15	6/1-9/28	5/14-9/25	87	136	12	13
N. Y.	8	29	-	-	19	75	6/1-9/28	5/7-9/22	311	671	67**	121
N. J.	-	1	-	-	-	1	-	?	-	3	-	-
Penna.	62	54	-	2	62	61	5/22-9/29	4/23-10/15	347	518	45	75
Totals	106	117	8	8	183	218	-	-	1368	1870	240	287

*Based on the average number of men that would have been employed if the work had been performed in all states on a five day week basis for four months, rather than during the periods indicated.

**Includes a few state foremen in New York.

E.O.W. CONTROL PROGRAM

Blister root control was continued under the E.O.W. program in the Northeastern States during 1934. As during the previous year, the work was confined chiefly to Ribes concentrations. Control work on many of these areas had been prevented for- wardly either by lack of cooperation or because the cost of eradicating the existing Ribes was excessive under ordinary conditions. Ribes eradication was especially adapted to the E.O.W. program since the work required chiefly manual labor and only a small expenditure for equipment.

During 1934, Ribes eradication was conducted from a total of 125 E.O.W. camps in the Northeastern States. (See Table 1.) Four of these camps were located on the White Mountain National Forest, two at Acadia National Park, two at the Allegheny National Forest, and the other 117 were state camps scattered over the forest region of the Northeastern States. Control work was limited to public lands in Pennsylvania and Massachusetts. In the other states, Ribes eradication was performed on both public and private lands, about 90 percent of the acreage worked under this program in these latter states being on individually-owned property.

The number of enlisted men employed on control work necessarily varied from day to day, the maximum number of men at any one time being 2085. Four of the New York camps were devoted chiefly to Ribes eradication work from May to September, and two other New York camps had 67 and 76 men respectively assigned to control work during this period. In Maine, an average of 86 men worked out of one camp and 24 out of another. The number of enlisted men assigned to blister root control from each of the other 117 camps ranged from an average of 5 to 43 men per day. The field activities of these laborers were directed by 287 foremen and chasers. This combined force was supervised by the regular permanent blister root control personnel consisting of state leaders and district agents provided by the Division of Plant Disease Control. All but 5 of the 50 district men supervised much work.

Table 1.—Distribution of Work and Personnel Employed on E. O. W. Ribes Eradication Projects in Northeastern States, 1934 and 1935

State	No. E.O.W. Camps				Control Work Performed		Period Work Performed		Personnel Employed	
	1934	1935	1934	1935	1934	1935	1934	1935	1934	1935
Maine	1	1	1	1	12	12	5/23-8/24/34	5/23-8/24/35	235	190
N. H.	1	1	1	1	32	32	6/1-9/22/34	5/23-9/17/35	247	122
Vt.	1	1	1	1	12	12	6/20-9/12/34	6/1-9/12/35	62	110
N. J.	1	1	1	1	12	12	7/1-9/30/34	5/2-9/20/35	45	58
P. I.	1	1	1	1	2	2	6/1-9/30/34	5/2-10/12/35	22	22
Conn.	1	1	1	1	12	12	6/1-9/28/34	5/14-9/25/35	53	122
N. Y.	1	1	1	1	12	12	6/1-9/22/34	5/1-9/22/35	101	114
N. C.	1	1	1	1	1	1	-	-	-	-
Tenn.	1	1	1	1	62	62	5/25-9/29/34	5/23-10/17/35	747	718
Total	100	117	8	8	218	218	-	-	1368	1870
									445	240

*Based on the average number of men that would have been employed if the work had been performed in all states on a five day week basis for four months, rather than during the periods indicated.
**Includes a few state foremen in New York.

The enlisted personnel spent a total of 168,202 man days on the Ribes eradication project during the period from May to September. As a result of this work, 373,960 acres were cleared of 13,646,549 wild Ribes and 9,144 cultivated bushes, or 36.5 Ribes per acre. This acreage represents 46 percent of the total area protected and 59 percent of the Ribes pulled under all programs during 1934. Also, 35 percent of the acreage worked under the E.C.W. program in 1934 consists of re-eradication projects.

It is impossible to give accurate cost figures for this program. However, it is known that the wages and expenses of the state foremen and the E.C.W. technical foremen and checkers engaged in supervising the work cost \$101,496.84. Transportation for the crews totaled \$27,801.46. The enlisted men were each paid \$1.00 per day, and the cost of food per man averaged 40 cents per day, or 5 cents more than in 1933. On the basis of total time and the above figures, excluding only supervision, the cost amounted to 71.3 cents per acre. Adding in the cost of supervision increases the per acre cost to 98.4 cents, compared with \$1.06 in 1933. These per acre cost figures are considerably higher than the average cost of eradicating Ribes in connection with the regular work during previous years. It may be attributed in part to the following causes. The district blister rust control agents' activities in connection with the E.C.W. program were limited to technical supervision. In other words, they instructed the CCC personnel as to where and how to do the necessary control work and performed sufficient administrative checking to make sure the desired results were accomplished. However, lack of full authority over the field men was a severe handicap in many instances. The amount and quality of the supervision provided by the E.C.W. technical foremen was also inadequate in a few cases. The sites selected for the C.C.C. work usually represented difficulty factors above the average. The number of Ribes eradicated per acre by the C.C.C. men averaged over three times as many as during previous years under the regular control program. Practically all of the total acreage was worked by crews in strip formation. The enlisted personnel consisted chiefly of men from the cities with little or no experience in manual labor and woods work. Consequently, close supervision was necessary. The wages paid to the E.C.W. technical foremen and checkers were also higher than those paid for similar work under the regular program. The necessity of emphasizing the fundamentals of Ribes eradication to a changing and inexperienced personnel frequently prevented refinements in crew methods to eliminate lost motion and to increase crew flexibility to meet varying field conditions. Lack of transportation often caused the men to walk more than two miles each way to and from work, which was not only time consuming but fatiguing to inexperienced men. The practice of requiring crews from some camps to report back to headquarters for the noon meal not only consumed considerable time but caused a physical reaction in the personnel which was not favorable to productive efforts. However, the regulation requiring a minimum of 30 hours actual field work per week for each enlisted man resulted in increased efficiency during 1934 over the previous year.

A comparison of the per acre values in the different states (Table 15) shows considerable variation. The average man days required per acre is, of course, dependent on many factors; such as, the number, size and distribution of the Ribes, density of undergrowth, topography, and the experience, ability and efficiency of the personnel. The high average for man days per acre in Pennsylvania can be attributed to the large number and size of the Ribes. In New Jersey, the high time factor is due to the crew working chiefly in swamps eradicating concentrations of Ribes. The average man days per acre in Massachusetts and Vermont appear rather excessive. In the former state the work was handicapped by administrative difficulties, such as, in some instances, the technical foremen having to divide their time on other projects. Also, the procedure in a few camps whereby an enlisted man was given sole direction of the men on blister rust control was not effective. In Vermont, considerable work was done in swampy sites; and in the northern part of the state, many of the Ribes were of large size. The amount of supervision was also inadequate in some instances.

The enlisted personnel spent a total of 168,302 man days on the Ribes eradication project during the period from May to September. As a result of this work, 375,900 acres were cleared of 13,646,549 wild Ribes and 9,144 cultivated bushes, or 16.5 Ribes per acre. This amount represents 15 percent of the total area protected and 75 percent of the Ribes pulled under all projects during 1934. Also, 15 percent of the acreage under the E.C.W. program in 1934 consists of re-eradication projects.

It is impossible to give accurate cost figures for this program. However, it is known that the wages and expenses of the state foremen and the E.C.W. technical foremen and checkers engaged in supervising the work cost \$101,495.84. Transportation for the crews totaled \$27,801.46. The enlisted men were each paid \$1.00 per day, and the cost of food for an average 10 cents per day, or 2 cents more than in 1933. On the basis of total time and the above figures, excluding only supervision, the cost amounted to \$1.3 cents per acre. Adding in the cost of supervision increases the per acre cost to 98.4 cents, compared with \$1.06 in 1933. These per acre cost figures are considerably higher than the average cost of eradicating Ribes in connection with the regular work during previous years. It may be attributed in part to the following causes. The district blaster first control agents' activities in connection with the E.C.W. program were limited to technical supervision. In other words, they instructed the CCC personnel as to where and how to do the necessary control work and performed sufficient administrative checking to make sure the desired results were accomplished. However, lack of full authority over the field men was a severe handicap in many instances. The amount and quality of the supervision provided by the E.C.W. technical foremen was also inadequate in a few cases. The sites selected for the E.C.W. work usually represented difficult factors above the average. The number of the Ribes eradicated per acre by the E.C.W. men averaged over three times as many as during previous years under the regular control program. Practically all of the total acreage was worked by crews in early formation. The enlisted personnel consisted entirely of men from the cities with little or no experience in manual labor and woods work. Consequently, close supervision was necessary. The wages paid to the E.C.W. technical foremen and checkers were also higher than those paid for similar work under the regular program. The necessity of emphasizing the fundamentals of Ribes eradication to a changing and inexperienced personnel frequently prevented refinements in crew methods to eliminate lost motion and to increase crew flexibility to meet varying field conditions. Lack of transportation often caused the men to walk more than two miles each way to and from work, which was not only time consuming but tiring to the men. The practice of requiring crews from some areas to report back to headquarters for the noon meal not only consumed considerable time but caused a physical reaction in the personnel which was not favorable to productive effort. However, the regular program, requiring a minimum of 30 hours actual field work per week for each enlisted man resulted in increased efficiency during 1934 over the previous year.

A comparison of the per acre values in the different states (Table 15) shows considerable variation. The average man days required per acre is, of course, dependent on many factors; such as, the number, size and distribution of the Ribes, density of undergrowth, topography, and the experience, ability and efficiency of the personnel. The high average per acre man days per acre in Pennsylvania can be attributed to the large number and size of the Ribes. In New Jersey, the high time factor is due to the crew working chiefly in swamps eradicating concentrations of Ribes. The average man days per acre in Massachusetts and Vermont appears rather excessive. In the former state, the work was facilitated by administrative difficulties, such as, in some instances, the technical foremen being unable to divide their time on other projects. Also, the procedure in a few cases whereby an enlisted man was given the direction of the men on blaster first control was not effective. In Vermont, considerable work was done in swampy areas; and in the northern part of the state, some of the Ribes were of large size. The amount of supervision was also inadequate in some instances.

The low per acre man day figures for Rhode Island and Connecticut are due primarily to the small number and size of Ribes in these states. No fair comparison can be made between the initial and re-eradication figures given in Table 16 because the same areas are not involved. It is noted, for example, that in Vermont, Massachusetts and Connecticut, the per acre figures are higher for the re-eradication work than for the initial projects. However, it is rather surprising that, based on totals for all states, the average man days per acre are practically the same for both the initial and re-eradication work, in spite of the fact that the number of Ribes per acre was $2\frac{1}{2}$ times greater in the former class of work than in the latter. Consequently, it appears that the number of Ribes per acre is not such an important factor influencing time and cost as some of the other contributing items mentioned in the two previous paragraphs.

In comparing the 1934 accomplishments with those of 1933, commendable increases are apparent as indicated in Table 15. It will be noted that the acreage worked per man day during 1934 was 10 percent greater than in 1933, in spite of the fact that over 10 percent more Ribes were found per acre. The cost per acre during 1934 was also reduced nearly 4 percent over the preceding year, even though the cost of subsistence was \$8410.10 greater when figured on a 40 cents per man day basis, rather than at 35 cents. The acreage worked per man day in New York and Rhode Island was respectively 2 and 3 times greater in 1934 than during the previous year. The decrease of 1.3 acres per man day in Massachusetts was due in part to over twice as many Ribes being pulled per acre in 1934 than in 1933.

The volume of blister rust control accomplished during 1933 and 1934 under the E.C.W. program has been considerably below original estimates. However, the quality of the work has been maintained at a high standard. This statement is based on numerous inspections made by the camp checkers and by the administrative officials. The supervisory personnel acquitted themselves commendably in all respects and the enlisted men in most cases gave the job the best that was in them during the time they spent in the field. The project has not only resulted in the protection of thousands of acres of valuable pine; but of even greater importance, it has helped to rehabilitate thousands of young men who were on the verge of despair prior to their enlistment in the C.C.C. camps.

The low per acre man day figures for Rhode Island and Connecticut are due primarily to the small number and size of Ribes in these states. No fair comparison can be made between the initial and re-eradication figures given in Table 15 because the same areas are not involved. It is noted, for example, that in Vermont, Massachusetts and Connecticut, the per acre figures are higher for the re-eradication work than for the initial project. However, it is rather surprising that, based on results for all states, the average man days per acre are practically the same for both the initial and re-eradication work. In spite of the fact that the number of Ribes per acre was 2 1/2 times greater in the former class of work than in the latter. Consequently, it appears that the number of Ribes per acre is not such an important factor influencing time and cost as some of the other contributing items mentioned in the two previous paragraphs.

In comparing the 1934 accomplishments with those of 1933, considerable increases are apparent as indicated in Table 15. It will be noted that the average worked per man day during 1934 was 15 percent greater than in 1933, in spite of the fact that over 10 percent more Ribes were found per acre. The cost per acre during 1934 was also reduced nearly 11 percent over the preceding year, even though the cost of subsistence was \$8410.10 greater when figured on a 40 cents per man day basis, rather than at 35 cents. The average worked per man day in New York and Rhode Island was respectively 1 and 2 times greater in 1934 than during the previous year. The decrease of 1.3 acres per man day in Massachusetts was due in part to over twice as many Ribes being pulled per acre in 1934 than in 1933.

The volume of blisters that control accomplished during 1933 and 1934 under the E.C.C. program has been considerably below original estimates. However, the quality of the work has been maintained at a high standard. This statement is based on numerous inspections made by the camp checkers and by the administrative officials. The supervisory personnel admitted themselves commandably in all respects and the enlisted men in most cases gave the job the best that was in them during the time they spent in the field. The project has not only resulted in the protection of thousands of acres of valuable oaks; but of even greater importance, it has helped to rehabilitate thousands of young men who were on the verge of despair prior to their enlistment in the E.C.C. camps.

Table 15- Comparison of Ribes Eradication Work Performed Under E.C.W. Program
In The Northeastern States During 1933 and 1934 (Initial and Re-eradication Projects)

<u>Totals for All States</u>			
<u>Item</u>	<u>1933</u>	<u>1934</u>	<u>% Increase or Decrease 1934 Over 1933</u>
No. of Camps doing erad. work.....	114	125	+ 9.6
No. of Townships in which work done.....	183	218	+ 19.1
Acreage worked.....	245,318	373,960	+ 52.4
Wild Ribes pulled.....	8,211,114	13,646,549	+ 66.2
Cult. Ribes pulled.....	5,127	9,144	+ 78.3
Total man days.....	122,621	168,202½	+ 37.2
Total cost of erad.....	\$182,142.36	\$266,627.36	+ 46.4
Cost per acre .....	.742	.713	-3.9
Ribes per acre.....	33.5	36.5	+ 10.4
Acres per man day.....	2.0	2.2	+ 10.0

*Excludes cost of supervision

<u>Per Acre Values By States</u>				
<u>State</u>	<u>Ribes Per Acre</u>		<u>Acres Worked per 8 Hr. Man Day</u>	
	<u>1933</u>	<u>1934</u>	<u>1933</u>	<u>1934</u>
Maine.....	23.0	43.8	3.1	2.8
N. H.....	65.1	63.4	1.9	2.2
Vt.	16.2	22.0	2.0	1.7
Mass.	15.0	35.6	2.9	1.6
R. I.	0.7	1.0	2.0	6.3
Conn.	5.6	9.9	5.0	4.7
N.Y.	34.0	36.7	1.2	2.3
N.J.	-	52.0	-	1.5
Penna.....	59.6	82.5	1.2	0.9
All States	33.5	36.5	2.0	2.2

Table 1. Summary of River Restoration Work Performed Under E.C.W. Program
in the Mississippi States During 1977 and 1978 (Initial and Preliminary Data)

Table for All States

	1977	1978	1977 over 1978
No. of dams doing river work.....	114	114	+ 0.0
No. of towns in which work done.....	183	183	+ 0.0
Average work.....	217,900	217,900	+ 0.0
Total miles of river.....	12,646.749	12,646.749	+ 0.0
Total miles of river.....	2,144	2,144	+ 0.0
Total miles of river.....	168,303.7	168,303.7	+ 0.0
Total cost of work.....	\$226,651.36	\$226,651.36	+ 0.0
Cost per acre.....	.743	.743	- 0.0
Cost per acre.....	36.2	36.2	+ 0.0
Cost per acre.....	2.5	2.5	+ 0.0

*Excludes cost of supervision

For River Values by States

	1977	1978	1977	1978
Alabama.....	2.1	2.1	2.1	2.1
Arkansas.....	1.3	1.3	1.3	1.3
California.....	2.0	2.0	2.0	2.0
Colorado.....	2.3	2.3	2.3	2.3
Connecticut.....	2.0	2.0	2.0	2.0
Delaware.....	2.0	2.0	2.0	2.0
District of Columbia.....	2.0	2.0	2.0	2.0
Florida.....	2.0	2.0	2.0	2.0
Georgia.....	2.0	2.0	2.0	2.0
Idaho.....	2.0	2.0	2.0	2.0
Illinois.....	2.0	2.0	2.0	2.0
Indiana.....	2.0	2.0	2.0	2.0
Iowa.....	2.0	2.0	2.0	2.0
Kansas.....	2.0	2.0	2.0	2.0
Kentucky.....	2.0	2.0	2.0	2.0
Louisiana.....	2.0	2.0	2.0	2.0
Maine.....	2.0	2.0	2.0	2.0
Massachusetts.....	2.0	2.0	2.0	2.0
Michigan.....	2.0	2.0	2.0	2.0
Minnesota.....	2.0	2.0	2.0	2.0
Mississippi.....	2.0	2.0	2.0	2.0
Missouri.....	2.0	2.0	2.0	2.0
Montana.....	2.0	2.0	2.0	2.0
Nebraska.....	2.0	2.0	2.0	2.0
Nevada.....	2.0	2.0	2.0	2.0
New Hampshire.....	2.0	2.0	2.0	2.0
New Jersey.....	2.0	2.0	2.0	2.0
New Mexico.....	2.0	2.0	2.0	2.0
New York.....	2.0	2.0	2.0	2.0
North Carolina.....	2.0	2.0	2.0	2.0
North Dakota.....	2.0	2.0	2.0	2.0
Ohio.....	2.0	2.0	2.0	2.0
Oklahoma.....	2.0	2.0	2.0	2.0
Oregon.....	2.0	2.0	2.0	2.0
Pennsylvania.....	2.0	2.0	2.0	2.0
Rhode Island.....	2.0	2.0	2.0	2.0
South Carolina.....	2.0	2.0	2.0	2.0
South Dakota.....	2.0	2.0	2.0	2.0
Tennessee.....	2.0	2.0	2.0	2.0
Texas.....	2.0	2.0	2.0	2.0
Utah.....	2.0	2.0	2.0	2.0
Vermont.....	2.0	2.0	2.0	2.0
Virginia.....	2.0	2.0	2.0	2.0
Washington.....	2.0	2.0	2.0	2.0
West Virginia.....	2.0	2.0	2.0	2.0
Wisconsin.....	2.0	2.0	2.0	2.0
Wyoming.....	2.0	2.0	2.0	2.0

Table 16-- Summary of Ribes Eradication Work Performed Under E.C.W. Program
In Northeastern States During 1934
(Excludes nursery sanitation and black currant elimination)

Initial Control Work

State	Acreage		Ribes Pulled		Man Days Worked by Enlisted Personnel	Total Cost		Per Acre		
	Total Worked	Pine Protected	Wild	Cult.		State	Govt.	Cost	Ribes	Men Days
Maine	37,219	12,559	1,961,582	829	14,986	-	24,047.56	.646	52.7	0.40
N. H.	18,347	10,280	1,225,602	-	9,098	-	14,291.17	.779	66.8	0.50
Vt.	9,243	3,695	199,236	20	4,789½	-	7,470.23	.808	21.6	0.52
Mass.	5,547	2,136	194,109	1535	2,787	-	4,155.32	.749	35.0	0.50
Conn.	27,885	4,750	55,661	719	1,848½	-	3,085.42	.111	2.0	0.07
N. Y.	123,434	41,390	4,858,976	4638	52,722½	2269.80	83,888.70	.698	39.4	0.43
N. J.	381	121	19,795	304	247½	-	346.50	.909	52.0	0.65
Penna.	18,377	4,345	2,739,437	160	20,455½	-	30,837.57	1.68	149.1	1.11
All States	240,433	79,276	11,254,398	8205	106,934½	2269.80	168,122.47	.709	46.8	0.44

Re-Eradication Work

Maine	10,612	7,626	132,042	-	2,028	135.00	3,238.00	3,373.00	.318	12.4	0.19
N. H.	5,325	2,840	275,876	-	1,861	-	2,917.53	2,917.53	.548	51.8	0.35
Vt.	7,765	4,298	175,595	-	5,145½	-	8,025.77	8,025.77	1.03	22.6	0.66
Mass.	2,554	650	94,433	56	2,439	-	3,637.08	3,637.08	1.43	37.0	0.95
R. I.	35,224	11,741	34,352	420	5,610½	15.00	8,562.52	8,577.52	.244	1.0	0.16
Conn.	29,240	3,988	512,344	74	10,357½	-	17,212.76	17,212.76	.589	17.5	0.35
N. Y.	17,856	4,691	332,093	334	7,642	330.20	12,164.78	12,494.98	.700	18.6	0.43
Penna.	24,951	6,061	835,416	55	26,184½	360.00	39,636.45	39,996.45	1.61	33.5	1.05
All States	133,527	41,895	2,392,151	939	61,268	840.20	95,394.89	96,235.09	.721	17.9	0.46

Basis of costs:

Includes (1) estimated cost of enlisted personnel's total time on Ribes eradication work figured at rate of \$1.40 per eight hour day. The total time of the crew men includes actual time spent in field locating and pulling Ribes, lunch hour and time spent traveling to and from work, but does not exceed eight hours per man per day. (2) Cost of transportation figured either at rate of \$40. per month for each truck plus 3¢ per mile for operating costs or at rate of 12¢ per mile for each mile used on project. (3) Cost of trail paper, picks, etc. Cost of technical foremen and checkers not included.

Table 17- Summary of Ribes Eradication Work Under E.C.W. Program in Northeastern States During 1934
(Excludes nursery sanitation and cultivated black currant elimination)

Initial and Re-Eradication

State	Acreage		Ribes Pulled		Man Days Worked by Enlisted Personnel	Total Cost		Per Acre		
	Total Worked	Pine Protected	Wild	Cult.		State	Govt.	Cost	Ribes	Man Days
Maine	47,831	20,185	2,093,624	829	17,014	135.00	27,285.56	27,420.56	.573	43.8 0.36
N. H.	23,672	13,120	1,501,478	-	10,959	-	17,208.70	17,208.70	.727	63.4 0.46
Vt.	17,008	7,993	374,831	20	9,935	-	15,496.00	15,496.00	.911	22.0 0.58
Mass.	8,101	2,786	288,542	1591	5,226	-	7,792.40	7,792.40	.962	35.6 0.65
R. I.	35,224	11,741	34,352	420	5,610½	15.00	8,562.52	8,577.52	.244	1.0 0.16
Conn.	57,125	8,738	568,005	793	12,206	-	20,298.18	20,298.18	.355	9.9 0.21
N. Y.	141,290	46,081	5,191,069	4972	60,364½	2600.00	96,053.48	98,653.48	.698	36.7 0.43
N. J.	381	121	19,795	304	247½	-	346.50	346.50	.909	52.0 0.65
Penna.	43,328	10,406	3,574,853	215	46,640	360.00	70,474.02	70,834.02	1.63	82.5 1.08
All States	373,960	121,171	13,646,549	9144	168,202½	3110.00	263,517.36	266,627.36	.713	36.5 0.45

Basis of Costs: See page 28.

The general category of "Other" is used to group all other categories of behavior. This category is used for all behavior that does not fit into any of the other categories.

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Personnel			Personal Data			Physical Data			Medical Data			Administrative Data		
Serial	Name	Grade	Age	Height	Weight	Complexion	Hair	Eyes	Religion	Marital Status	Education	Service Number	Assignment	Remarks
101	John Doe	Private	24	5'8"	160	Fair	Brown	Blue	Protestant	Single	High School	101-101	Infantry	Good
102	Jane Smith	Private	22	5'6"	140	Fair	Blonde	Blue	Catholic	Single	High School	102-102	Infantry	Good
103	Robert Johnson	Private	26	6'0"	180	Dark	Black	Brown	Muslim	Married	College	103-103	Infantry	Good
104	Mary Wilson	Private	21	5'4"	120	Fair	Red	Blue	Protestant	Single	High School	104-104	Infantry	Good
105	David Brown	Private	23	5'9"	150	Fair	Black	Brown	Hindu	Single	High School	105-105	Infantry	Good

25 Oct 1900 To 31 Oct 1900

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25 Oct 1900 To 31 Oct 1900

Table 18.- Classification of Blister Rust Control Funds Used on Project
"Ribes Eradication" Under E.C.W. Program in Northeastern States During 1934
 (Excludes nursery sanitation and cultivated black currant elimination)

State	State B.R. Approp. Funds		E.C.W. Funds		Totals
	Amount Expended	% Total	Amount Expended	% Total	
Maine	135.00	0.5	27,285.56	99.5	27,420.56
N.H.	-	-	17,208.70	100.0	17,208.70
Vt.	-	-	15,496.00	100.0	15,496.00
Mass.	-	-	7,792.40	100.0	7,792.40
R.I.	15.00	0.2	8,562.52	99.8	8,577.52
Conn.	-	-	20,298.18	100.0	20,298.18
N. Y.	2600.00	2.6	96,053.48	97.4	98,653.48
N. J.	-	-	346.50	100.0	346.50
Penna.	360.00	0.5	70,474.02	99.5	70,834.02
Totals	3110.00	1.2	263,517.36	98.8	266,627.36

The total cost of Ribes eradication work under the E.C.W. Program represents 51.4% of the total expenditure for this project under all programs in the Northeastern States during 1934.

Table 12 - Classification of Riffles River Control Funds Used on Project
 Riffles River Control Fund E.C.W. Program in Northern States During 1974
 (Funds merely available and collected black current elimination)

State	State R.E. Appropriation		E.C.W. Funds		Total
	Amount Expended	% Total	Amount Expended	% Total	
Alaska	125.00	0.2	27,227.75	99.8	27,352.75
A.R.	-	-	17,508.70	100.0	17,508.70
Calif.	-	-	15,006.00	100.0	15,006.00
Idaho	-	-	1,792.40	100.0	1,792.40
Mont.	12.00	0.2	8,482.42	99.8	8,494.42
Nebr.	-	-	20,223.18	100.0	20,223.18
N.H.	2600.00	2.6	96,027.48	97.4	98,627.48
N.J.	-	-	12.50	100.0	12.50
Tex.	780.00	0.2	70,171.02	99.8	70,951.02
Total	3110.00	1.2	267,217.76	98.8	266,627.76

The total cost of Riffles River Control work under the E.C.W. Program represents 2.4% of the total expenditure for this project under all programs in the Northern States during 1974.

Table 19.- Summary of Ribes Eradication Work Performed Under E.C.W. Program
In Northeastern States, 1933 and 1934, Inclusive
(Excludes nursery sanitation & cultivated black currant elimination)

Initial Control Work

State	Total Acreage Worked	Ribes Pulled		Total Man Days	Cost		Per Acre	
		Wild	Cult.		State	E.C.W.	Total	Cost
Maine	95,100	3,333,126	4,826	34,132½	-	52,604.83	52,604.83	.553
N. H.	52,426	3,673,473	373	28,485	-	44,672.77	44,672.77	.852
Vt.	15,447	311,417	50	7,733½	-	11,968.37	11,968.37	.775
Mass.	10,049	276,794	1,535	3,994	-	5,888.00	5,888.00	.586
R. I.	80	129	-	63	-	97.07	97.07	1.21
Conn.	27,885	55,661	719	1,848½	-	3,085.42	3,085.42	.111
N. Y.	128,761	4,984,787	4,708	61,173½	2269.80	96,354.55	98,624.35	.766
N. J.	381	19,795	304	247½	-	346.50	346.50	.909
Penna.	35,632	4,183,898	364	34,915½	-	51,414.64	51,414.64	1.44
All States	365,761	16,839,080	12,879	172,593	2269.80	266,432.15	268,701.95	.735
								46.0
								.47

Re-Eradication Work

Maine	17,935	260,187	53	4,122	135.00	6,436.20	6,571.20	.366	14.5	.23
N. H.	13,328	566,174	-	4,705	-	7,407.97	7,407.97	.556	42.5	.35
Vt.	12,445	239,951	3	7,599½	-	11,775.93	11,775.93	.946	19.3	.61
Mass.	9,859	188,503	105	5,317½	-	7,876.01	7,876.01	.799	19.1	.54
R. I.	40,167	37,564	506	8,082½	15.00	12,368.33	12,383.33	.308	0.9	.20
Conn.	68,105	720,772	183	18,195½	-	28,815.17	28,815.17	.423	10.7	.27
N. Y.	46,065	1,344,931	447	27,181	330.20	40,985.43	41,315.63	.897	29.2	.59
Penna.	45,613	1,650,501	95	43,027½	360.00	63,562.53	63,922.53	1.40	36.2	.94
All States	253,517	5,018,583	1392	118,230½	840.20	179,227.57	180,067.77	.710	19.8	.47

Basis of costs:

Includes (1) estimated cost of enlisted personnel's total time on Ribes eradication work figured at rate of \$1.35 per eight hour day in 1933 and \$1.40 in 1934. The total time of the crew men includes actual time spent in field locating and pulling Ribes, lunch hour and time spent traveling to and from work, but does not exceed eight hours per man per day. (2) Cost of transportation figured either at rate of \$40. per month for each truck plus 3¢ per mile for operating costs or at rate of 12¢ per mile for each mile used on project. (3) Cost of trail paper, picks, etc. Cost of technical foremen and checkers not included.

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1994	0.24	257	-9.105,235	21.574,339	08.9335	192,571	978,51	080,978,31	107,647	astate																																																																																																																																																																																																																																																																																																																																																																																																																																																											

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Table 20.- Summary of Ribes Eradication Work Under E.C.W. Program
In Northeastern States, 1933 and 1934, Inclusive
(Excludes nursery sanitation and cultivated black current elimination)

Initial and Re-Eradication

State	Total Acreage Worked	Ribes Pulled		Total Man Days	Total Cost		Per Acre		
		Wild	Cult.		State	E.C.W.	Cost	Ribes	Man Days
Maine	113,035	3,593,313	4,879	38,254½	135.00	59,041.03	.524	31.8	.34
N. H.	65,754	4,239,647	373	33,190	-	52,080.74	.792	64.5	.50
Vt.	27,892	551,368	53	15,333	-	23,744.30	.851	19.8	.55
Mass.	19,908	465,297	1,640	9,311½	-	13,764.01	.691	23.4	.47
R. I.	40,247	37,693	506	8,145½	15.00	12,465.40	.310	0.9	.20
Conn.	95,990	786,433	902	20,044	-	31,900.59	.332	8.2	.21
N. Y.	174,826	6,329,718	5,155	88,354½	2600.00	137,339.98	.800	36.2	.51
N. J.	381	19,795	304	247½	-	346.50	.909	52.0	.65
Penna.	81,245	5,834,399	459	77,943	360.00	114,977.17	1.42	71.8	.96
All States	619,278	21,857,663	14,271	290,823½	3110.00	445,659.72	.725	35.3	.47

Basis of costs: see page 31

Table 21.- Summary of Ribes Eradication Work Performed by the E.C.W. Personnel
From C.C.C. Camps Located on National Forests and Parks in Northeastern States

1934

Project	Type of Erad.	Acreage		Ribes Pulled		Man Days Worked by Enlisted Personnel	Total Cost	Per Acre		
		Total Worked	Pine Protected	Wild	Cult.			Cost	Ribes	Man Days
Acadia National Park, Me.	Initial	5387	1077	126,349	30	2834	4754.01	.882	23.5	.53
	Re-Erad.	304	61	1,064	-	141	240.25	.790	3.5	.46
	Total	5691	1138	127,413	30	2975	4994.26	.878	22.4	.52
White Mt. National Forest, N.H.	Initial	1058	530	160,279	-	755½	1176.67	1.11	151.5	.71
	Re-Erad.	1472	740	119,469	-	554½	863.51	.587	81.2	.38
	Total	2530	1270	279,748	-	1310	2040.18	.806	110.6	.52
Allegheny Nat. Forest Penna.	Initial	1358	453	82,810	-	526	801.92	.591	61.0	.39
Total	Initial	7803	2060	369,438	30	4115½	6732.60	.863	47.4	.53
	Re-Erad.	1776	801	120,533	-	695½	1103.76	.621	67.9	.39
	Total	9579	2861	489,971	30	4811	7836.36	.818	51.2	.50

1933 and 1934

Project	Type of Erad.	Acreage Worked	Ribes Pulled		Man Days Worked by Enlisted Personnel	Total Cost	Per Acre		
			Wild	Cult.			Cost	Ribes	Man Days
Acadia National Park, Me.	Initial	10,128	255,977	242	6237	9,593.90	.947	25.3	.62
	Re-Erad.	2,632	16,020	-	1151	1,823.59	.693	6.1	.44
	Total	12,760	271,997	242	7388	11,417.49	.895	21.3	.58
White Mt. National Forest, N.H.	Initial	6,811	498,693	-	3021½	4,751.90	.698	73.2	.44
	Re-Erad.	3,398	252,345	-	1454½	2,310.07	.680	74.3	.43
	Total	10,209	751,038	-	4476	7,061.97	.692	73.6	.44
Allegheny Nat. Forest Penna.	Initial	1,358	82,810	-	526	801.92	.591	61.0	.39
Total	Initial	18,297	837,480	242	9784½	15,147.72	.828	45.8	.53
	Re-Erad.	6,030	268,365	-	2605½	4,133.66	.686	44.5	.43
	Total	24,327	1,105,845	242	12,390	19,281.38	.793	45.5	.51

These data are included in preceding tables summarizing E.C.W. control work.

Basis of costs: See Page 31.

Table 21. - Summary of Ribes eradication work performed by the U.S. Forest Service from U.S. Game Refuge on National Forests and Parks in Northwestern States

1934

Project	Type of Erad.	Acres		Ribes Killed		Men Days Worked by Unskilled Personnel	Per Acre		
		Worked	Total	Wild	Cult.		Cost	Ribes	
Acadia	Initial	1077	1077	126,349	30	2834	174.01	.882	27.2
National	Re-Erad.	61	304	1,084	-	142	240.25	.790	7.2
Park, Me.	Total	1138	1381	127,433	30	2976	404.26	.878	34.4
White Mt.	Initial	830	1058	120,279	-	1552	170.67	1.11	121.2
National	Re-Erad.	740	1475	119,439	-	2544	82.71	.287	31.2
Forest, N.H.	Total	1570	2533	239,718	-	4096	204.18	.806	152.4
Allegheny Nat. Forest, Penn.	Initial	453	1758	82,810	-	252	101.92	.291	61.0
Total	Initial	2060	7807	469,438	30	4154	132.60	.867	47.4
	Re-Erad.	801	1710	120,237	-	2688	107.76	.621	67.9
	Total	2861	9517	589,675	30	6842	240.36	.818	115.3

1935 and 1936

Project	Type of erad.	Acres		Ribes Killed		Men Days Worked by Unskilled Personnel	Total Cost		Per Acre	
		Worked	Total	Wild	Cult.		Cost	Ribes	Man Days	
Acadia	Initial	10,128	575,977	202	-	6237	\$2,527.90	.947	25.7	62
National	Re-erad.	2,072	16,020	-	-	1151	\$1,827.29	.697	6.1	44
Park, Me.	Total	12,200	571,997	202	-	7388	\$4,355.19	.892	31.8	73
White Mt.	Initial	6,812	498,697	-	-	7021	\$4,721.90	.692	72.2	44
National	Re-erad.	7,398	525,742	-	-	1454	\$2,710.07	.630	74.7	44
Forest, N.H.	Total	10,209	721,038	-	-	8475	\$7,061.97	.662	73.6	44
Allegheny Nat. Forest, Penn.	Initial	1,358	82,810	-	-	252	\$01.92	.291	61.0	32
Total	Initial	18,297	1,105,347	202	-	12,390	\$12,281.74	.193	47.2	73
	Re-erad.	6,070	568,352	-	-	2605	\$4,113.66	.686	44.2	44
	Total	24,367	1,673,699	202	-	14,995	\$16,395.40	.258	47.8	73

These data are included in preceding tables summarizing U.S.W. control work.

Rests of costs: see page 31.

Table 22.- Supervision of Ribes Eradication Work Performed
Under E.C.W. Program in Northeastern States - 1934

State	No. Technical Foremen and Checkers	Man Days Worked by Technical Foremen and Checkers	Cost of Technical Foremen and Checkers		
			E. C. W.	State	Total
Maine	35	2,191	\$12,320.73	-	\$12,320.73
N. H.	20	1,521	7,532.22	822.15	8,354.37
Vt.	9	727	3,265.60	941.00	4,206.60
Mass.	9	409	2,292.30	-	2,292.30
R. I.	5	588	3,055.32	-	3,055.32
Conn.	13	1,199	7,464.70	-	7,464.70
N. Y.	121	8,062½	35,255.40	11,451.52	46,706.92
Penna.	77	4,085	16,804.70	281.20	17,085.90
All States	289	18,782½	87,990.97	13,495.87	101,486.84

The costs of the technical foremen and checkers employed on Ribes eradication work under the E.C.W. Program were not charged against the project "Ribes Eradication", as these men acted in a strictly supervisory capacity. In most instances, the technical foremen directed the work of from three to five crews of six men each. The E.C.W. foremen and checkers were paid from \$100. to \$167.50 per month gross, the majority of them receiving from \$130. to \$140. Their costs, while engaged on blister control work, were charged to the project "Supervision of Ribes Eradication".

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Table 22 - Supervision of River Elevation Work Performed
Under E.C.W. Program in Western States - 1944

State	No. Technical Foremen and Checkers	Man Days Worked by Technical Foremen and Checkers	Cost of Technical Foremen and Checkers	
			E. C. W.	Total
Alaska	222	12,782	27,000.00	101,486.84
Arizona	17	4,087	16,800.70	17,037.00
California	121	5,024	25,275.40	46,706.95
Colorado	42	1,192	7,464.70	7,464.70
Florida	2	589	7,022.25	7,022.25
Idaho	3	403	2,295.70	2,295.70
Montana	9	787	7,267.60	7,267.60
New Mexico	20	1,251	7,578.25	8,354.77
Oregon	25	2,191	212,750.75	212,750.75
Utah	-	-	-	-
Washington	-	-	-	-
Wyoming	-	-	-	-
Total				

The costs of the technical foremen and checkers employed in river elevation work under the E.C.W. Program were not charged against the project "River Elevation", as these men acted in a strictly supervisory capacity. In most instances, the technical foremen directed the work of from three to five crews of six men each. The E.C.W. foremen and checkers were paid from \$100. to \$167.50 per month plus the majority of their traveling from \$150. to \$160. Their costs, while charged on their control work, were charged to the project "Supervision of River Elevation".

P. W. A. CONTROL PROGRAM

On August 22, 1933, the Public Works Administration allotted \$2,050,000. to the Bureau of Plant Industry for blister rust control work during the fiscal years 1934 and 1935. The Division of Blister Rust Control was made directly responsible for organizing and directing the work and for the effective expenditure of the money. In spite of the lateness of the season, Ribes eradication projects were conducted in all of the Northeastern States, except New Hampshire and New Jersey, during September, 1933 and extended into October in Rhode Island and New York. This P.W.A. work resulted in the eradication of 694,187 wild Ribes and 228 cultivated bushes from 24,023 acres, and helped materially in relieving an acute unemployment situation in many localities.

During the period October, 1933 to April, 1934, inclusive, pine and control area mapping was conducted by 93 temporary P.W.A. employees in all of the Northeastern States, except New Jersey. This mapping is an essential part of control work and an important factor in reducing Ribes eradication costs.

From August 23, 1933 to April 30, 1934, most of the permanent blister rust control personnel were paid from P.W.A. funds. Bureau of Plant Industry money was used to pay part of their salaries during May and June, 1934, but since July 1, 1934 all of the regular personnel have been paid out of the P.W.A. allotment.

The 1934 Ribes eradication work under the P.W.A. Program began early in May and continued practically throughout the entire season in all of the Northeastern States. The policy and procedure followed this year were the same as during the preceding year. Field activities were directly supervised by the permanent state leaders and district blister rust control agents. General supervision was provided by the federal regional field office. Labor was secured through the local offices of the public welfare agencies and National Reemployment Service. The rate of pay for laborers was 50¢ to 60¢ per hour with a limit of 30 hours per week per man. Experienced foremen were recommended by the respective state leaders and appointed as agents of the Bureau of Plant Industry or Bureau of Entomology and Plant Quarantine at monthly gross salaries ranging from \$110.00 to \$130.00. Most of these men were paid \$120.00 per month. Only two supervisors (one in Connecticut and the other in New York) were employed during the season. Each Ribes eradication crew normally consisted of 10 laborers, 2 straw bosses, and a foreman. In most instances the crew was divided into two units, each working independently but in adjoining blocks. The foreman divided his time between the two units, the straw bosses taking charge during his absence.

Table 23.- Distribution of Work and Personnel Employed on P.W.A.
Ribes Eradication Work in Northeastern States During 1934.

State	No. Towns Where Work Performed	Personnel Employed			Total Man Days Worked
		Laborers and Straw Bosses	Foremen	Total	
Maine	25	119	14 (1)	133	7641
N. H.	17	132	11	143	4772½
Vt.	11	36	3	39	2363
Mass.	29	610 (2)	19	629	3940½
R. I.	1	11	1	12	1091
Conn.	3	26	3	29	1355
N. Y.	66	124	10 (3)	134	8872
N. J.	3	—	1	1	69½
Penna.	23	96	8	104	6259
Totals	178	1154	70	1224	36,363½

(1) Includes 4 state scouts.

(2) Includes 586 individual cooperators who participated in control work.

(3) Paid by state.

On August 22, 1934, the Public Works Administration allocated \$2,000,000 to the Bureau of Plant Industry for blatter rust control work during the fiscal years 1934 and 1935. The Division of Blatter Rust Control was made directly responsible for organizing and directing the work and for the effective expenditure of the money. In spite of the lateness of the season, Ribes eradication projects were conducted in all of the Northern States, except New Hampshire and New Jersey, during September, 1934 and extended into October in Rhode Island and New York. This F.W.A. work resulted in the eradication of 694,187 wild Ribes and 328 cultivated bushes from 24,025 acres, and helped materially in relieving an acute unemployment situation in many localities.

During the period October, 1934 to April, 1935, inclusive, pine and control area mapping was conducted by 35 temporary F.W.A. employees in all of the Northeastern States, except New Jersey. This mapping is an essential part of control work and an important factor in reducing Ribes eradication costs.

From August 22, 1934 to April 30, 1935, most of the permanent blatter rust control personnel were paid from F.W.A. funds. Bureau of Plant Industry money was used to pay part of their salaries during May and June, 1935, but since July 1, 1935 all of the regular personnel have been paid out of the F.W.A. allotment.

The 1934 Ribes eradication work under the F.W.A. program began early in May and continued practically throughout the entire season in all of the Northeastern States. The policy and procedure followed this year were the same as during the preceding year. Wild activities were directly supervised by the permanent state leaders and district blatter rust control agents. General supervision was provided by the Federal regional field office. Labor was secured through the local offices of the public welfare agencies and National Employment Service. The rate of pay for laborers was 50¢ to 60¢ per hour with a limit of 30 hours per week per man. Experienced foremen were recommended by the respective state leaders and appointed as agents of the Bureau of Plant Industry or Bureau of Entomology and Plant Quarantine at monthly gross salaries ranging from \$110.00 to \$170.00. Most of these men were paid \$120.00 per month. Only two supervisors (one in Connecticut and the other in New York) were employed during the season. Each Ribes eradication crew normally consisted of 10 laborers, 2 straw bosses, and a foreman. In most instances the crew was divided into two units, each working independently but in adjoining blocks. The foreman divided his time between the two units, the straw bosses taking charge during his absence.

Table 27. - Distribution of Work and Personnel Employed on F.W.A. Ribes Eradication Work in Northeastern States During 1934.

State	No. Towns Where State Work Performed	Personnel Employed		Total Man Days Worked
		Foremen and Straw Bosses	Laborers and Foremen	
Maine	27	119	14 (1)	1041
N. H.	17	132	11	1172
Vt.	11	36	7	2367
Mass.	29	610 (2)	19	1910
N. J.	1	11	1	107
Conn.	1	28	7	1352
N. Y.	66	154	10 (3)	2312
N. C.	7	7	1	604
Penn.	27	36	8	2339
Total	118	1154	70	12244

- (1) Includes 4 state agents.
 (2) Includes 253 individual cooperators who participated in control work.
 (3) Paid by state.

A total of 1154 laborers and straw bosses, 68 foremen, and two supervisors were employed on Ribes eradication work under the P.W.A. Program in the Northeastern States during the field season of 1934. These men, other than the two supervisors, were given 36,363½ man days employment exclusive of the time spent on the nursery sanitation and cultivated black currant elimination projects which amounted to 1101½ man days and 375 man days, respectively.

All costs of control work under the P.W.A. Program in New Hampshire, Connecticut, and Pennsylvania were paid from P.W.A. funds.

In Maine, the state paid for the services of four scouts (one in each of the agent districts) used in conjunction with the P.W.A. crews, and also paid for transportation of the P.W.A. crews in a few instances. One individual in Maine also contributed \$11.25 for additional labor used with a P.W.A. crew working on his property.

In Massachusetts, 586 owners furnished labor equivalent to \$3662.40 for work in connection with the P.W.A. Program. In this state, 17 P.W.A. scouts were employed to supervise work in cooperation with individuals and eradicate the Ribes on areas where the bushes were too few to require crew work. Two thirteen man crews were also employed in northern Worcester County during the entire season working principally in skunk currant concentrations, along stream courses. However, such control work was limited to the protection of pine areas which justified Ribes eradication even though the cost was above average.

In Vermont, Rhode Island and New Jersey, a small amount of state money was expended chiefly for P.W.A. crew transportation. The state provided all of the foremen for the P.W.A. crews in New York and paid some transportation costs, spending a total of \$7287.15.

The work performed under the P.W.A. Program in cooperation with individuals in Maine and Massachusetts was not reported under the "Regular Cooperative Program", as it was thought advisable to include under the former program all projects where P.W.A. money was expended. One exception was made to this procedure in Connecticut where a small amount of P.W.A. money was spent for transportation under the E.R.A. program.

The cost of the P.W.A. control work includes wages of laborers, straw bosses, and scouts; total salaries of appointed foremen, and in a few instances expenses paid the foremen for official travel performed in their personally owned automobiles; cost of equipment such as trail paper and picks; and crew transportation. However, such transportation costs were relatively small, as in most cases getting to and from work was regarded as the personal responsibility of the men concerned. This arrangement proved very satisfactory in most instances. Usually, at least two members of a crew had cars and the other men contributed small amounts for their transportation.

The average cost per acre of all work conducted under the P.W.A. Program during 1934 was 50.7 cents, as compared with an average of 57.1 cents per acre for the work under all programs. With the exception of the work performed by the 4 scouts in Maine and 17 scout foremen in Massachusetts, all the 1934 P.W.A. work was performed by crews in strip formation. The higher wages paid the P.W.A. personnel and the limited amount of scouting work are the chief contributing factors to the increased per acre cost of the work as compared with the average cost of the regular work in past years. Also the P.W.A. crew were used to eradicate areas with heavy Ribes concentrations, as evidenced by the fact that in the areas worked during 1934 the Ribes averaged 25.8 per acre as compared with an average of 9.9 bushes per acre for the period 1918 - 1932, inclusive, prior to the inauguration of the emergency programs.

A comparison of the per acre values for the initial control work under the P.W.A. Program in the various states shows that in Maine, New Hampshire, Vermont and New York the average cost and Ribes per acre varied but very little, the former ranging from 52.6 cents in New York to 68.8 cents in Vermont, while the Ribes per acre averaged from 24.0 in Vermont to 38.4 in Maine. The high per acre cost in Massachusetts and Pennsylvania were due primarily to the large Ribes factor. Most of the initial work in Massachusetts was in heavy skunk currant concentrations in northern Worcester County. In Pennsylvania, the Ribes averaged 152 per acre and most of the bushes were of large size (*Ribes rotundifolium*). All of the P.W.A. work in New Jersey was performed by one temporary scout, who pulled the Ribes in areas which did not require crew work. E.C.W. labor was used to work the Ribes concentrations.

While the average cost of the re-eradication work under the 1934 P.W.A. Program was only 29.8 cents for all states as compared with 69.5 cents for the initial eradication, several irregularities will be noted. Only one small area, a swampy site which originally contained thousands of *Ribes glandulosum*, was re-worked in New Hampshire. Most of the areas re-worked in Massachusetts had relatively few Ribes, which could be pulled by scouts. This resulted in a low per acre cost; whereas in Connecticut, it was necessary to use crews working in strip formation to remove the bushes which averaged nearly 40 to the acre. Although the Ribes averaged only 6.2 per acre on the re-eradication work in Rhode Island, the bushes were located chiefly in swampy sites which were very difficult to examine.

No satisfactory comparison can be made of the total results accomplished under the P.W.A. Program during the years 1933 and 1934, because in 1933 the control work was limited to approximately one month (September). However, the per acre cost of all such work during 1934 was only 50.7 cents as compared with \$1.21 during the previous year, or a decrease of 58.1 percent; indicating increased efficiency, as the average number of Ribes per acre did not decrease proportionately, being 25.8 in 1934 and 28.9 in 1933.

The nursery sanitation work under the P.W.A. Program is summarized on Pages 60 and 65, and the results of the special black currant elimination projects performed under the P.W.A. Program are given on Page 72.

Inspections of the field work in all states showed that on the whole excellent results were obtained. A large number of men received training in Ribes eradication work, and many of these men will be available for similar work during 1935. The training should also enable many of these men, who are pine owners, to maintain blister rust control on their own properties. The control work under the P.W.A. Program during 1934 extended protection to thousands of acres of valuable pine, which in many instances would not have been possible for the owners to protect under the existing economic conditions. Acute unemployment conditions were also materially relieved in many localities by the employment of these men on blister rust control work.

A comparison of the per acre values for the initial control work under the P.W.A. Program in the various states shows that in Maine, New Hampshire, Vermont and New York the average cost and Rides per acre varied but very little, the former ranging from 25.6 cents in New York to 28.8 cents in Vermont, while the Rides per acre averaged from 24.0 in Vermont to 28.4 in Maine. The high per acre cost in Massachusetts and Pennsylvania were due primarily to the large Rides factor. Most of the initial work in Massachusetts was in heavy skunk current concentration in northern Worcester County. In Pennsylvania, the Rides averaged 152 per acre and most of the bushes were of large size (Rides rounded off). All of the P.W.A. work in New Jersey was performed by one temporary agent, who pulled the Rides in areas which did not require crew work. E.C.W. labor was used to work the Rides concentrations.

While the average cost of the re-eradication work under the 1934 P.W.A. Program was only 29.6 cents for all states as compared with 69.5 cents for the initial eradication, several exceptions will be noted. Only one small area, a swampy site which originally contained thousands of Rides glandulorum, was re-worked in New Hampshire. Most of the areas re-worked in Massachusetts had relatively few Rides, which could be pulled by agents. This resulted in a low per acre cost; whereas in Connecticut, it was necessary to use crews working in strip formation to remove the bushes which averaged nearly 40 to the acre. Although the Rides averaged only 6.2 per acre on the re-eradication work in Rhode Island, the bushes were located chiefly in swampy sites which were very difficult to examine.

No satisfactory comparison can be made of the total results accomplished under the P.W.A. Program during the years 1933 and 1934, because in 1933 the control work was limited to approximately one month (September). However, the per acre cost of all such work during 1934 was only 50.7 cents as compared with \$1.21 during the previous year, or a decrease of 58.1 percent; indicating increased efficiency, as the average number of Rides per acre did not decrease proportionately, being 25.8 in 1934 and 28.9 in 1933.

The survey eradication work under the P.W.A. Program is summarized on Pages 60 and 61, and the results of the special black current elimination projects performed under the P.W.A. Program are given on Page 72.

Inspection of the field work in all states showed that on the whole excellent results were obtained. A large number of men received training in Rides eradication work, and many of these men will be available for other work during 1935. The training should also enable many of these men, who are given owners, to maintain better control on their own properties. The control work under the P.W.A. Program during 1934 extended protection to thousands of acres of valuable pine, which in many instances would not have been possible for the owners to protect under the existing economic conditions. Acute unemployment conditions were also materially relieved in many localities by the employment of these men on blaster control work.

Table 24.- Summary of Ribes Eradication Work Performed Under P.W.A. Program
In Northeastern States During 1934
(Excludes nursery sanitation and black currant elimination)

Initial Control Work

State	Acreage		Ribes Pulled		Total Man Days	Total Cost			Per Acre		
	Total Worked	Pine Protected	Wild	Cult.		Indiv.	State	P.W.A.	Cost	Ribes	Man Days
Maine	49,469	16,074	1,901,014	1689	7,109½	-	1877.51	29,266.79	.630	38.4	0.14
N. H.	33,872	17,500	988,571	-	4,758	-	-	19,915.45	.588	29.2	0.14
Vt.	10,240	5,195	264,004	-	1,678	-	20.00	7,021.46	.688	25.8	0.16
Mass.	7,049	2,639	640,763	138	1,734	472.40	-	6,698.69	1.02	90.8	0.25
N. Y.	19,556	7,078	468,446	1741	4,349	-	3475.29	6,812.50	.526	24.0	0.22
N. J.	12,314	2,591	2,527	859	69½	-	45.23	505.20	.045	0.2	0.01
Penna.	14,396	2,647	2,185,127	2164	6,259	-	-	25,966.98	1.80	151.8	0.43
All States	146,896	53,724	6,450,452	6591	25,957	472.40	5418.03	96,187.07	.695	43.9	0.18

Re-Eradication Work

Maine	5,328	1,886	73,474	-	531½	11.25	178.57	2,126.76	.435	13.8	0.10
N. H.	37	7	5,629	-	14½	-	-	60.55	1.64	152.1	0.39
Vt.	4,925	2,501	82,913	-	685	-	-	2,736.54	.556	16.8	0.14
Mass.	85,382	32,907	133,480	1116	2,206½	3190.00	119.95	5,648.00	.105	1.6	0.03
R. I.	6,502	2,167	40,378	112	1,091	-	260.54	4,459.29	.726	6.2	0.17
Conn.	5,473	1,438	218,133	-	1,355	-	-	5,654.34	1.03	39.9	0.25
N. Y.	24,039	8,703	195,337	3808	4,523	-	3811.86	11,045.90	.618	8.1	0.19
All States	131,686	49,609	749,344	5036	10,406½	3201.25	4370.92	31,731.38	.298	5.7	0.08

Basis of costs:

Includes actual cost of laborers, scouts, straw bosses, and foremen employed in locating and pulling Ribes; transportation of crews and miscellaneous expenses for trail paper, picks, etc. Cost of P.W.A. supervisors (only two employed during 1934) not included in the eradication figures.

Table 25.- Summary of Ribes Eradication Work Under P.W.A. Program in Northeastern States During 1934
(Excludes nursery sanitation and cultivated black currant elimination)

Initial and Re-Eradication

State	Acreage		Pine Protected	Ribes Pulled		Total Man Days	Total Cost			Per Acre			
	Total Worked			Wild	Cult.		Indiv.	State	P.W.A.	Total	Cost	Ribes	Man Days
Maine	54,797	17,960		1,974,488	1,689	7641	11.25	2056.08	31,393.55	33,460.88	.611	36.0	0.14
N. H.	33,909	17,507		994,200	-	4772½	-	-	19,976.00	19,976.00	.589	29.3	0.14
Vt.	15,165	7,696		346,917	-	2363	-	20.00	9,758.00	9,778.00	.645	22.9	0.16
Mass.	92,431	35,546		774,243	1,254	3940½	3662.40	119.95	12,346.69	16,129.04	.174	8.4	0.04
R. I.	6,502	2,167		40,378	112	1091		260.54	4,459.29	4,719.83	.726	6.2	0.17
Conn.	5,473	1,438		218,133	-	1355	-	-	5,654.34	5,654.34	1.03	39.9	0.25
N. Y.	43,595	15,781		663,783	5,549	8872	-	7287.15	17,858.40	25,145.55	.577	15.2	0.20
N. J.	12,314	2,591		2,527	859	69½	-	45.23	505.20	550.43	.045	0.2	0.01
Penna.	14,396	2,647		2,185,127	2,164	6259	-	-	25,966.98	25,966.98	1.80	151.8	0.43
All States	278,582	103,333		7,199,796	11,627	36,363½	3673.65	9788.95	127,918.45	141,381.05	.507	25.8	0.13

Basis of costs: See Page 38.

Table 26.- Classification of Blister Rust Control Funds Used on Project
"Ribes Eradication" Under P.W.A. Program in Northeastern States During 1934
 (Excludes nursery sanitation and cultivated black currant elimination)

State	State Funds			P.W.A.	Total
	Individuals	State B.R. Approp.	Total		
Maine	11.25	2056.08	2067.33	31,393.55	33,460.88
N. H.	-	-	-	19,976.00	19,976.00
Vt.	-	20.00	20.00	9,758.00	9,778.00
Mass.	3662.40	119.95	3782.35	12,346.69	16,129.04
R. I.	-	260.54	260.54	4,459.29	4,719.83
Conn.	-	-	-	5,654.34	5,654.34
N. Y.	-	7287.15*	7287.15	17,858.40	25,145.55
N. J.	-	45.23	45.23	505.20	550.43
Penna.	-	-	-	25,966.98	25,966.98
Totals	3673.65	9788.95	13,462.60	127,918.45	141,381.05

*Includes \$2284.72 from state funds other than blister rust appropriation.

The total cost of Ribes eradication work under the F.W.A. Program represents 30.4% of total expenditure for this project under all programs in Northeastern States during 1934.

Percentage of Total Expenditures For Ribes Eradication Work
Under P.W.A. Program Derived From Various Sources

State	State Funds			P.W.A.	Total
	Individuals	State B.R. Approp.	Total		
Maine	0.1	6.1	6.2	93.8	100.0
N. H.	-	-	-	100.0	100.0
Vt.	-	0.2	0.2	99.8	100.0
Mass.	22.7	0.8	23.5	76.5	100.0
R. I.	-	5.5	5.5	94.5	100.0
Conn.	-	-	-	100.0	100.0
N. Y.	-	29.0	29.0	71.0	100.0
N. J.	-	8.2	8.2	91.8	100.0
Penna.	-	-	-	100.0	100.0
Totals	2.6	6.9	9.5	90.5	100.0

Table 28. - Classification of Disaster Relief Funds Used on Project
 "Rabies Eradication" Under F.W.A. Program in Northeastern States During 1934
 (Includes nursery sanitation and cultivated black current elimination)

State	State Funds			Total
	Individuals	State F.W.A. Appropriation	F.W.A.	
Maine	11.52	2056.08	11,397.25	33,460.83
N. H.	-	-	19,976.00	19,976.00
Vt.	-	20.00	9,728.00	9,748.00
Mass.	3682.40	119.92	12,346.69	16,150.01
R. I.	-	260.54	4,459.29	4,719.83
Conn.	-	-	2,674.74	2,674.74
N. Y.	-	1587.12*	11,828.40	22,115.25
N. J.	-	42.23	702.60	744.83
Penn.	-	-	22,966.98	22,966.98
Totals	5273.62	2783.92	127,918.45	141,781.02

*Includes \$2364.72 from state funds other than disaster relief appropriation.
 The total cost of Rabies eradication work under the F.W.A. Program represents 10.1% of total expenditures for this project under all programs in Northeastern States during 1934.

Percentage of Total Expenditures for Rabies Eradication Work
 Under F.W.A. Program Derived from Various Sources

State	State Funds			Total
	Individuals	State F.W.A. Appropriation	F.W.A.	
Maine	0.1	6.1	97.8	100.0
N. H.	-	-	100.0	100.0
Vt.	-	0.2	99.8	100.0
Mass.	22.7	0.8	76.5	100.0
R. I.	-	5.5	94.5	100.0
Conn.	-	-	100.0	100.0
N. Y.	-	29.0	71.0	100.0
N. J.	-	8.2	91.8	100.0
Penn.	-	-	100.0	100.0
Totals	2.6	6.9	90.5	100.0

Table 27.- Summary of Ribes Eradication Work Under P.W.A. Program
In Northeastern States - 1933 and 1934, Inclusive

(Excludes nursery sanitation and cultivated black currant elimination)

Initial Control Work

State	Total Acreage Worked	Ribes Pulled		Total Man Days	Local Coop.	State	Total Cost		Per Acre		
		Wild	Cult.				P.W.A.	Total	Cost	Ribes	Man Days
Maine	54,654	2,047,406	1,917	8,375½	-	\$1,909.01	\$34,495.99	\$36,405.00	.666	37.5	.15
N. H.	33,872	988,571	-	4,758	-	-	19,915.45	19,915.45	.588	29.2	.14
Vt.	16,303	355,194	-	3,118½	\$81.00	20.00	13,134.04	13,235.04	.812	21.8	.19
Mass.	8,800	757,929	138	2,399½	472.40	29.53	9,587.91	10,089.84	1.15	86.1	.27
N. Y.	19,556	468,446	1,741	4,349	-	3,475.29	6,812.50	10,287.79	.526	24.0	.22
N. J.	12,314	2,527	859	69½	-	45.23	505.20	550.43	.045	0.2	.005
Penna.	14,827	2,273,856	2,164	6,478	-	-	26,854.01	26,854.01	1.81	153.4	.44
All States	160,326	6,893,929	6,819	29,548	\$553.40	\$5,479.06	\$111,305.10	\$117,337.56	.732	43.0	.18

Re-Eradication Work

Maine	5,328	73,474	-	531½	\$11.25	\$178.57	\$2,126.76	\$2,316.58	.435	13.8	.10
N. H.	37	5,629	-	14½	-	-	60.55	60.55	1.64	152.1	.39
Vt.	8,414	105,888	-	1,363½	39.00	-	5,673.69	5,712.69	.679	12.6	.16
Mass.	86,951	140,721	1,116	2,541	3,190.00	189.01	6,991.20	10,370.21	.119	1.6	.03
R. I.	6,792	40,625	112	1,201	-	260.54	5,087.01	5,347.55	.787	6.0	.18
Conn.	8,107	288,219	-	2,394	-	-	9,983.62	9,983.62	1.23	35.6	.30
N. Y.	25,415	268,858	3,808	4,858½	-	3,811.86	12,404.49	16,216.35	.638	10.6	.19
Penna.	1,235	76,640	-	789	-	-	3,179.41	3,179.41	2.57	62.1	.64
All States	142,279	1,000,054	5,036	13,693	\$3,240.25	\$4,439.98	\$45,506.73	\$53,186.96	.374	7.0	.10

Basis of costs: See Page 38.

Table 28.-- Summary of Ribes Eradication Work Under P.W.A. Program
In Northeastern States -- 1933 and 1934 Inclusive
 (Excludes nursery sanitation and cultivated black currant elimination)

Initial and Re-Eradication

States	Total Acreage Worked	Ribes Pulled		Total Man Days	Total Cost			Total	Per Acre		
		Wild	Cult.		Local Co-op.	State	P.W.A.		Cost	Ribes	Man Days
Maine	59,982	2,120,880	1,917	8,907	11.25	2087.58	36,622.75	38,721.58	.646	35.4	.15
N. H.	33,909	994,200	-	4,772½	-	-	19,976.00	19,976.00	.589	29.3	.14
Vt.	24,717	461,082	-	4,482	120.00	20.00	18,807.73	18,947.73	.767	18.7	.18
Mass.	95,751	898,650	1,254	4,940½	3662.40	218.54	16,579.11	20,460.05	.214	9.4	.05
R. I.	6,792	40,625	112	1,201	-	260.54	5,087.01	5,347.55	.787	6.0	.18
Conn.	8,107	288,219	-	2,394	-	-	9,983.62	9,983.62	1.23	35.6	.30
N. Y.	44,971	737,304	5,549	9,207½	-	7287.15	19,216.99	26,504.14	.589	16.4	.20
N. J.	12,314	2,527	859	69½	-	45.23	505.20	550.43	.045	0.2	.005
Penna.	16,062	2,350,496	2,164	7,267	-	-	30,033.42	30,033.42	1.87	146.3	.45
All States	302,605	7,893,983	11,855	43,241	3793.65	9919.04	156,811.83	170,524.52	.564	26.1	.14

Basis of costs: See page 38

In addition to the E.R.A. work listed in the following table, a special black currant elimination project was conducted in Connecticut during 1934. The results of this special black currant work are summarized on Pages 71 to 73.

E.E.A. CONTRACT PROJECTS

Other miscellaneous projects were conducted with E.E.A. funds on labor in Maine, Connecticut, and New York during 1934.

In Maine, an allotment of E.E.A. money was obtained for fifteen re-education work in the town of Biddeford, where a crew of 12 men was employed part time during the period May 17 to August 31. The state paid the wages of the foreman employed on this project, which was under the direct supervision of district agent Curtis.

The E.E.A. project in Connecticut resulted in costs which being incurred in 7 towns during the season with an average of 10 men being employed. In addition to the \$10,000 E.E.A. funds expended on the work, two towns contributed \$10,000.00 (direct relief money) for the hire of labor, and \$2,000.00 E.E.A. money and \$2,000.00 state funds were expended for transportation expenses.

Work was also conducted in 5 towns under the E.E.A. Program in three of the agent districts in New York with an average of 20 men, including one crew from an E.E.A. residential camp in Agent Ketchum's district. The state contributed \$11,000.00 for the hire of foreman to supervise this E.E.A. work in New York.

The various classes of labor and number of men who were employed under the E.E.A. Program represents 1.02 and 0.02, respectively, of the totals for all work conducted in the Northeastern States during 1934.

In addition to the E.E.A. work listed in the following table, a special black current education project was conducted in Connecticut during 1934. The results of this special black current work are summarized on pages 11 to 17.

Table 29.- Summary of Ribes Eradication Work Under E.R.A. Program

In Northeastern States During 1934.

(Excludes nursery sanitation and cultivated black currant elimination)

State	Type of Erad.	Acreage		Ribes Pulled			Total Cost				Per Acre		
		Total Worked	Pine Protected	Wild	Cult.	Total Man Days	Towns	State	P.W.A.	E.R.A.	Total	Cost	Ribes Days
Maine	Re-Erad.	2,549	1,333	66,688	-	401	-	70.10	-	1,426.80	1,496.90	.587	25.2 0.16
Conn.	Initial	8,165	1,270	22,326	483	1,337	1,083.00	8.35	238.20	4,905.15	6,234.70	.764	2.7 0.16
N. Y.	Initial	1,370	496	47,076	-	583	-	896.97	-	793.72	1,690.69	1.23	34.4 0.43
	Re-Erad.	1,253	454	6,804	-	217	-	262.80	-	544.65	807.45	.644	5.4 0.17
	Total	2,623	950	53,880	-	800	-	1159.77	-	1,338.37	2,498.14	.952	20.5 0.30
All States	Initial	9,535	1,766	69,402	483	1,920	1,083.00	905.32	238.20	5,698.87	7,925.39	.831	7.3 0.20
	Re-Erad.	3,802	1,787	73,492	-	618	-	332.90	-	1,971.45	2,304.35	.606	19.3 0.16
	Total	13,337	3,553	142,894	483	2,538	1,083.00	1238.22	238.20	7,670.32	10,229.74	.767	10.7 0.19

Basis of costs:

Includes actual cost of laborers, straw bosses, and foremen employed in locating and pulling Ribes; cost of crew transportation and miscellaneous expenses for trail paper, picks, etc.

Table 30.-
Classification of Blister Rust Control Funds Used on Project "Ribes Eradication"
Under E.R.A. Program in Northeastern States During 1934

State	State Funds			Federal Funds			Totals
	Towns	State B.R. Approp.	Total	E.R.A.	P.W.A.	Total	
Maine	-	70.10	70.10	1426.80	-	1426.80	1,496.90
Conn.	1083.00	8.35	1091.35	4905.15	238.20	5143.35	6,234.70
N. Y.	-	1159.77	1159.77	1338.37	-	1338.37	2,498.14
Totals	1083.00	1238.22	2321.22	7670.32	238.20	7908.52	10,229.74

The total cost of Ribes eradication work under the E.R.A. Program represents 2.2% of the total expenditures for this project under all programs in the Northeastern States during 1934.

Percentage of Total Expenditures For Ribes Eradication Work
Under E.R.A. Program Derived From Various Sources

State	State Funds			Federal Funds			Totals
	Towns	State B.R. Approp.	Total	E.R.A.	P.W.A.	Total	
Maine	-	4.7	4.7	95.3	-	95.3	100.0
Conn.	17.4	0.1	17.5	78.7	3.8	82.5	100.0
N. Y.	-	46.4	46.4	53.6	-	53.6	100.0
Total	10.6	12.1	22.7	75.0	2.3	77.3	100.0

Table 30.-
Classification of Bitter Root Control Funds Used on Project "Bitter Root"
Under F.E.A. Program in Northwestern States During 1934

State	Town	State Funds		Federal Funds		Totals
		Approved	Total	F.E.A.	P.W.A.	
Idaho	-	70.10	70.10	1426.80	-	1496.90
Mont.	1007.00	2.75	1009.75	4005.15	238.20	6,234.70
W. Y.	-	1159.11	1159.11	1338.37	-	2,497.48
Total	1007.00	1278.25	2321.22	7470.32	238.20	10,229.74

The total cost of Bitter Root eradication work under the F.E.A. Program represents 2.52% of the total expenditures for this project under all programs in the Northwestern States during 1934.

Percentage of Total Expenditures for Bitter Root Eradication Work
Under F.E.A. Program Derived from Various Sources

State	Town	State Funds		Federal Funds		Totals
		Approved	Total	F.E.A.	P.W.A.	
Idaho	-	70.1	70.1	95.3	-	165.4
Mont.	11.4	0.1	11.5	18.7	7.8	38.0
W. Y.	-	46.4	46.4	57.0	-	103.4
Total	12.4	116.6	174.0	210.0	7.8	402.2

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RIBES ERADICATION PERFORMED UNDER EACH PROGRAM
IN THE NORTHEASTERN STATES DURING 1934
(EXCLUDES NURSERY SANITATION AND SPECIAL BLACK CURRANT ERADICATION PROJECTS)

**Table 31.- SUMMARY OF RIBES ERADICATION WORK CONDUCTED UNDER ALL PROGRAMS
DURING 1934 IN NORTHEASTERN STATES**

Program		Regular Cooperative Program	E.C.W.	P.W.A.	E.R.A.	Totals
Total Acreage Worked	Initial	65,024	240,433	146,896	9,535	461,888
	Re-erad.	82,170	133,527	131,686	3,802	351,185
	Total	147,194	373,960	278,582	13,337	813,073
Acreage Pine Protected	Initial	27,011	79,276	53,724	1,766	161,777
	Re-erad.	29,937	41,895	49,609	1,787	123,228
	Total	56,948	121,171	103,333	3,553	285,005
Wild Ribes pulled		2,144,445	13,646,549	7,199,796	142,894	23,133,684
Cult. Ribes pulled		2,690	9,144	11,627	483	23,944
Total man days		12,289	168,202½	36,364	2,538	219,393½
Total Cost* of Erad. to	Individuals	\$3,833.98	-	\$3,673.65	-	\$7,507.63
	Towns	2,649.93	-	-	\$1,083.00	3,732.93
	Counties	881.35	-	-	-	881.35
	State	38,945.54	\$3,110.00	9,788.95	1,238.22	53,082.71
	E.C.W.	-	263,517.36	-	-	263,517.36
	P.W.A.	-	-	127,918.45	238.20	128,156.65
	E.R.A.	-	-	-	7,670.32	7,670.32
	Total	\$46,310.80	\$266,627.36	\$141,381.05	\$10,229.74	\$464,548.95
Per Acre Values	Cost	.315	.713	.507	.767	.571
	Ribes	14.6	36.5	25.8	10.7	28.5
	Man days	.08	.45	.13	.19	.27

*Exclusive of supervision.

Basis of costs: See Page 18 for Regular Cooperative Program, Page 28 for E.C.W. Program, Page 38 for P.W.A. Program, and Page 44 for E.R.A. Program.



TOTAL ACREAGE WORKED - 813,073

TOTAL NUMBER OF RIBES - 23,157,628

Table 1. - SUMMARY OF RIBES ERADICATION WORK CONDUCTED UNDER ALL PROGRAMS DURING 1954 IN NORTHEASTERN STATES

(Excludes nursery sanitation and special black current eradication projects)

Program	Cooperative Program	E.C.W.	F.W.A.	E.R.A.	Totals
Total	82,024	240,433	146,899	9,522	481,888
Average	82,170	122,527	121,888	2,802	321,185
Worked	147,124	273,980	278,682	12,327	812,073
Average	27,011	79,276	82,724	1,768	161,777
Pine	29,927	41,290	42,609	1,787	123,328
Protected	22,948	121,141	102,823	2,522	289,005
Wild Ribes pulled	2,144,445	12,646,242	7,192,792	142,824	22,135,684
Other Ribes pulled	2,890	2,144	11,627	482	23,944
Total man days	12,289	122,202	26,224	2,522	213,235
Individuals	22,822.98	-	22,672.65	-	47,507.63
Towns	2,649.92	-	-	\$1,082.00	2,732.92
Counties	281.22	-	-	-	281.22
State	22,945.84	22,110.00	2,788.92	1,228.22	23,082.71
E.C.W.	-	222,617.22	-	-	222,617.22
F.W.A.	-	-	127,910.42	228.20	128,138.62
E.R.A.	-	-	-	7,670.22	7,670.22
Total	44,210.80	422,627.22	\$141,321.02	\$10,229.74	\$424,248.22
Per	Cost	.212	.507	.767	.871
Acre	Ribes	14.6	22.0	10.7	28.2
Value	Man days	.08	.12	.19	.27

*Exclusive of supervision.

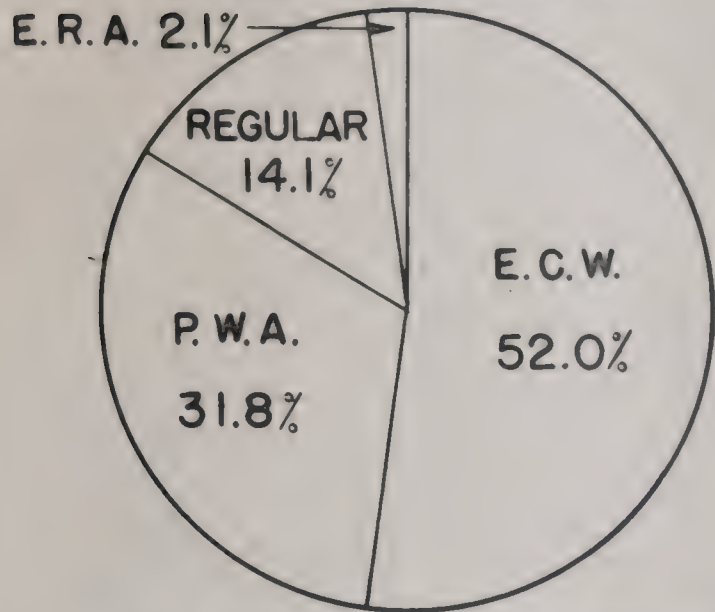
Basis of cost: See Page 15 for Regular Cooperative Program, Page 28 for E.C.W. Program, Page 28 for F.W.A. Program, and Page 44 for E.R.A. Program.

RIBES ERADICATION PERFORMED UNDER EACH PROGRAM IN THE NORTHEASTERN STATES DURING 1934

(EXCLUDES NURSERY SANITATION AND CULTIVATED BLACK CURRANT ELIMINATION)

PERCENTAGE OF TOTAL ACREAGE CLEARED OF RIBES

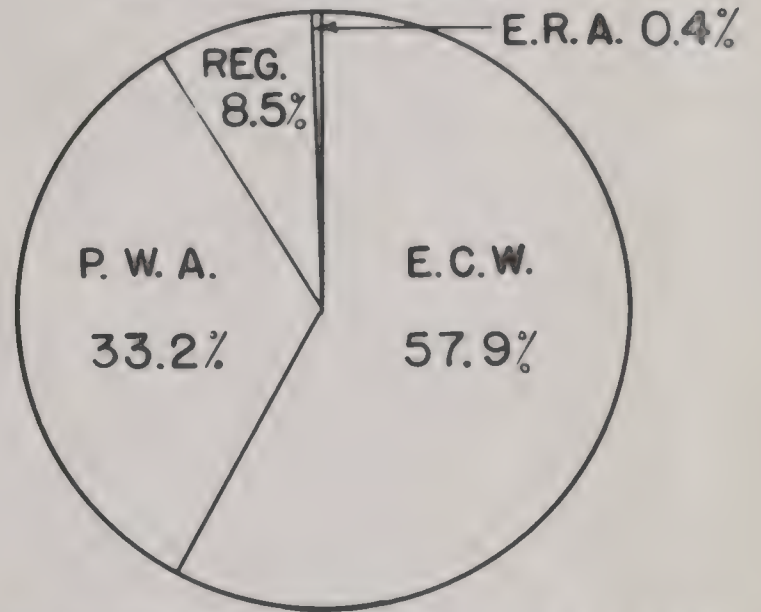
INITIAL ERADICATION



TOTAL ACREAGE WORKED = 461,888

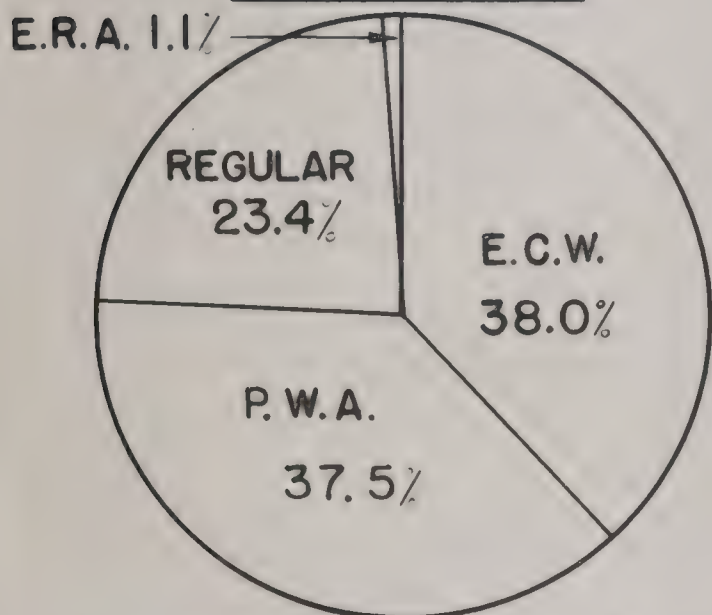
PERCENTAGE OF TOTAL WILD RIBES DESTROYED

INITIAL ERADICATION



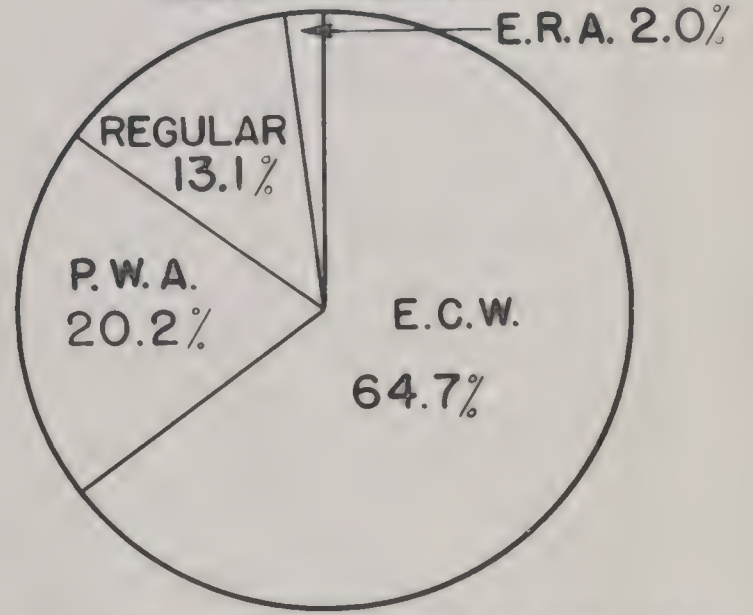
TOTAL NUMBER OF RIBES = 19,433,896

RE-ERADICATION



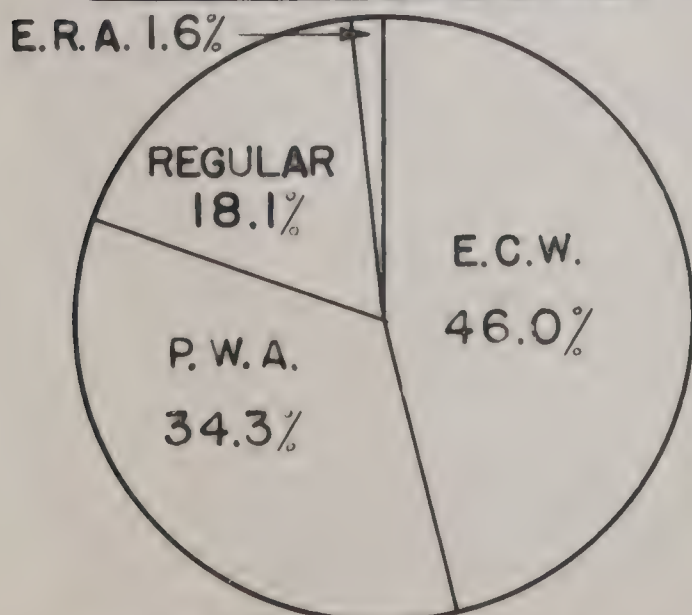
TOTAL ACREAGE WORKED = 351,185

RE-ERADICATION



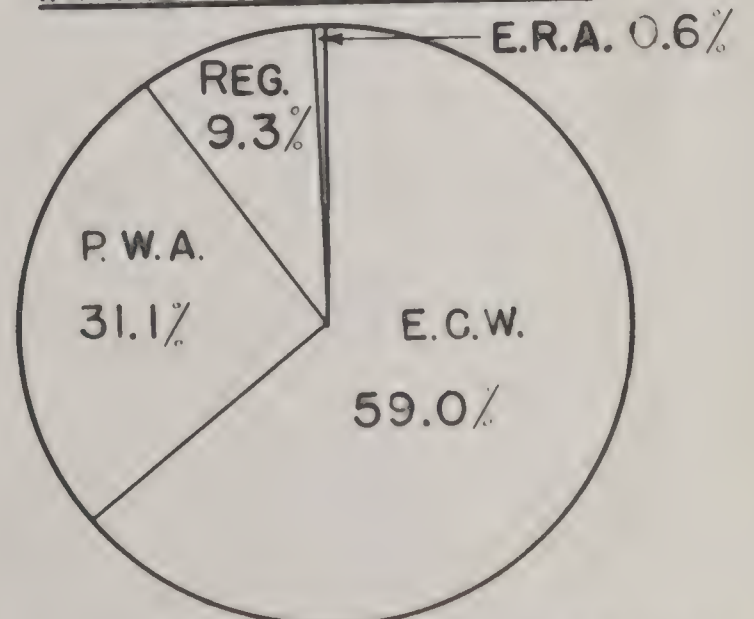
TOTAL NUMBER OF RIBES = 3,699,788

INITIAL & RE-ERADICATION



TOTAL ACREAGE WORKED = 813,073

INITIAL & RE-ERADICATION



TOTAL NUMBER OF RIBES = 23,133,684

Table 32.- Classification of Blister Rust Control Funds Used on Project "Ribes Eradication"
Under All Programs in Northeastern States During 1934
(Excludes nursery sanitation and cultivated black currant elimination)

State	State Funds			Federal Funds			Total
	State B.R. Approp.	Other State Approp.	Local Co-op.	E.C.W.	P.W.A.	E.R.A.	
Maine	2,582.95		661.02	27,285.56	31,393.55	1426.80	60,105.91
N. H.	2,962.24	10,132.72	2,100.00	17,208.70	19,976.00	-	37,184.70
Vt.	20.00	-	-	15,496.00	9,758.00	-	25,254.00
Mass.	1,805.60	-	3,821.50	7,792.40	12,346.69	-	20,139.09
R. I.	275.54	-	-	8,562.52	4,459.29	-	13,021.81
Conn.	1,880.16	-	1,112.40	20,298.18	5,892.54	4905.15	31,095.87
N. Y.	27,568.53	2,389.12	4,426.99	96,053.48	17,858.40	1338.37	115,250.25
N. J.	45.23	-	-	346.50	505.20	-	851.70
Penna.	3,420.62	-	-	70,474.02	25,966.98	-	96,441.00
Totals	40,560.87	12,521.84	12,121.91	263,517.36	128,156.65	7670.32	399,344.33

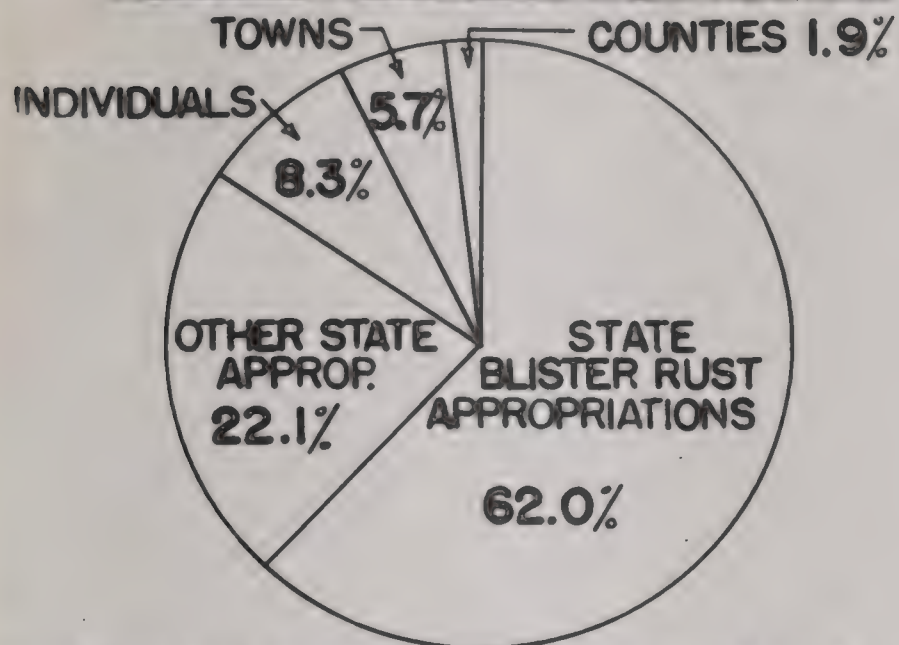
Percentage of Total State and Federal Funds, in Respective States,
Derived From Various Sources and Expended on Project Ribes Eradication

Maine	4.1	-	1.0	43.1	49.5	2.3	94.9	100.0
N. H.	5.7	19.3	4.0	32.9	38.1	-	71.0	100.0
Vt.	0.1	-	-	61.3	38.6	-	99.9	100.0
Mass.	7.0	-	14.8	30.3	47.9	-	78.2	100.0
R. I.	2.1	-	-	64.4	33.5	-	97.9	100.0
Conn.	5.5	-	3.3	59.5	17.3	14.4	91.2	100.0
N. Y.	18.4	1.6	3.0	64.2	11.9	0.9	77.0	100.0
N. J.	5.1	-	-	38.6	56.3	-	94.9	100.0
Penna.	3.4	-	-	70.6	26.0	-	96.6	100.0
Totals	8.7	2.7	2.6	56.7	27.6	1.7	86.0	100.0

SOURCE OF TOTAL FUNDS SPENT ON PROJECT "RIBES ERADICATION" UNDER EACH PROGRAM IN NORTHEASTERN STATES DURING 1934

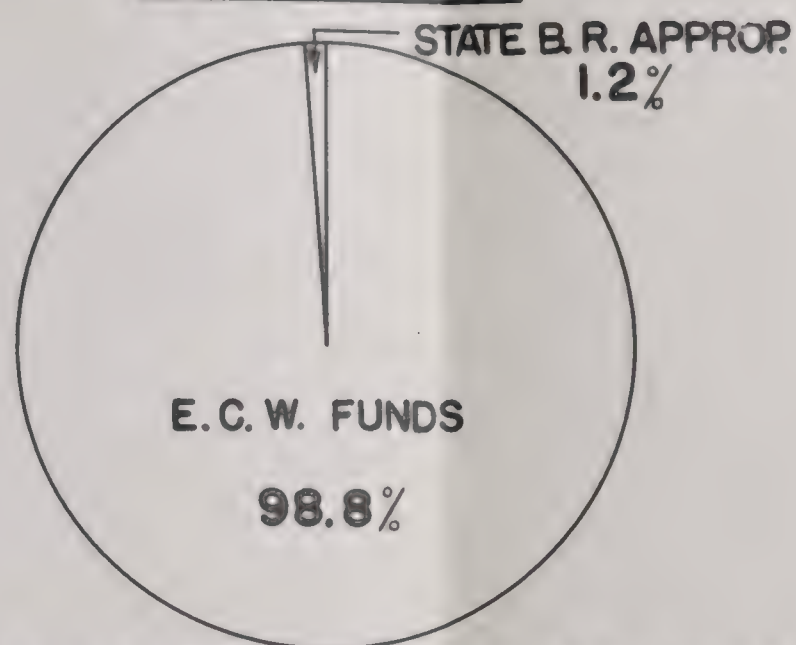
(EXCLUDES NURSERY SANITATION AND CULTIVATED BLACK CURRANT ELIMINATION.)

REGULAR COOPERATIVE PROGRAM



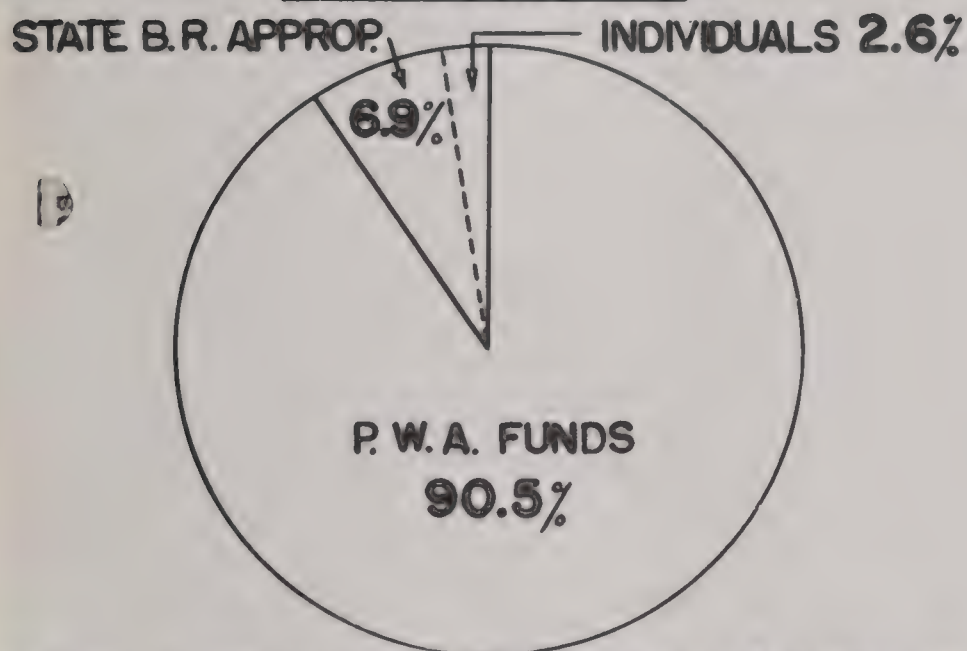
TOTAL COST OF RIBES ERADICATION = \$46,310.80

E. C. W. PROGRAM



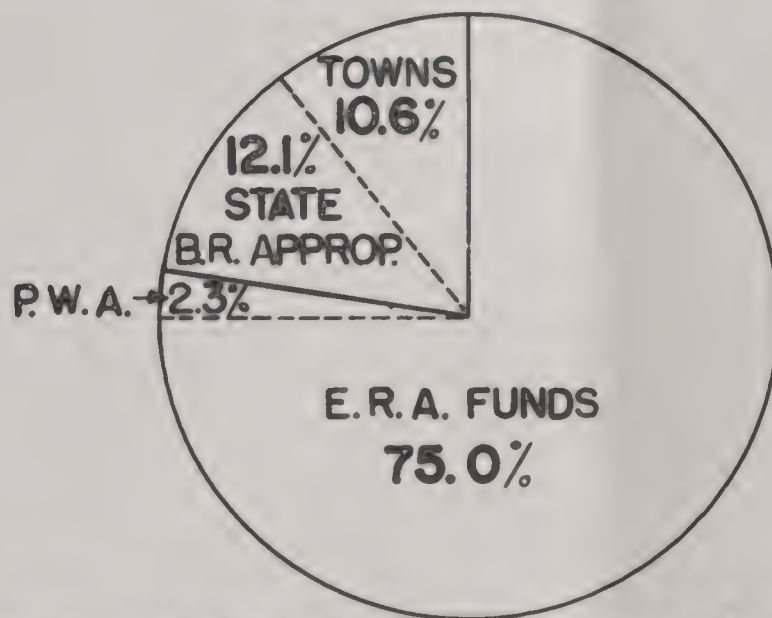
TOTAL COST OF RIBES ERADICATION = \$266,627.36

P. W. A. PROGRAM



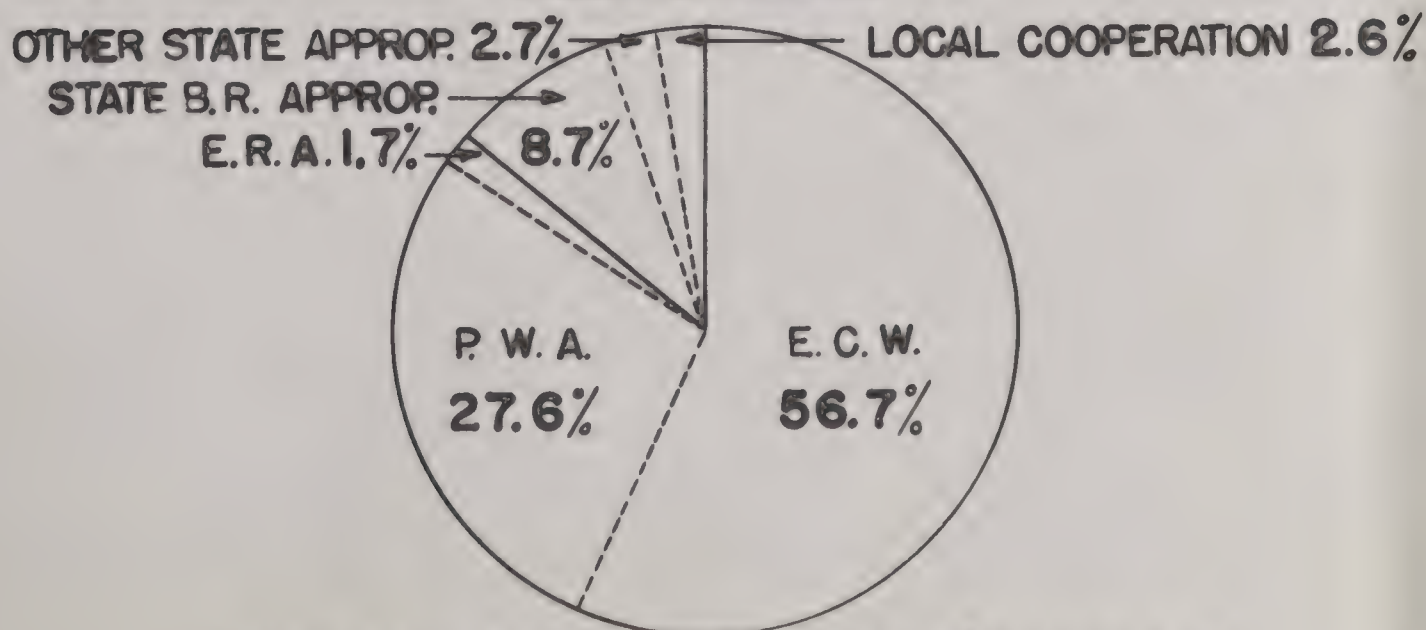
TOTAL COST OF RIBES ERADICATION = \$141,381.05

E. R. A. PROGRAM



TOTAL COST OF RIBES ERADICATION = \$10,229.74

ALL PROGRAMS



TOTAL COST OF RIBES ERADICATION = \$464,548.95

Table 33.- Summary of All Ribes Eradication Work Performed on Federal Lands
In the Northeastern States (Regular and E.C.W. Program)

1934 (All Under E.C.W. Program)

Project	Type of Trad.	Acreage Worked	Ribes Pulled		Cost						Per Acre	
			Wild	Cult.	E.C.W.	B.P.I.	Forest Service	Park Service	State	Total	Cost	Ribes
Acadia National Park	Initial	5387	126,349	30	4754.01	-	-	-	-	4754.01	.882	23.5
	Re-Erad.	304	1,064	-	240.25	-	-	-	-	240.25	.790	3.5
	Total	5691	127,413	30	4994.26	-	-	-	-	4994.26	.878	22.4
White Mt. National Forest	Initial	1058	160,279	-	1176.67	-	-	-	-	1176.67	1.11	151.5
	Re-Erad.	1472	119,469	-	863.51	-	-	-	-	863.51	.587	81.2
	Total	2530	279,748	-	2040.18	-	-	-	-	2040.18	.806	110.6
Allegheny National Forest	Initial	1358	82,810	-	801.92	-	-	-	-	801.92	.591	61.0
Totals	Initial	7803	369,438	30	6732.60	-	-	-	-	6732.60	.863	47.4
	Re-Erad.	1776	120,533	-	1103.76	-	-	-	-	1103.76	.621	67.9
	Total	9579	489,971	30	7836.36	-	-	-	-	7836.36	.818	51.2

1924-1934 Inclusive (Regular and E.C.W. Program)

Acadia National Park	Initial	17,854	759,897	242	9,593.90	3145.83	-	8345.53	-	21,085.26	1.180	42.6
	Re-Erad.	2,632	16,020	-	1,823.59	-	-	-	-	1,823.59	.691	6.1
	Total	20,486	775,917	242	11,417.49	3145.83	-	8345.53	-	22,908.85	1.118	37.9
White Mt. National Forest	Initial	8,623	384,777	-	2,725.31	75.63	1471.62	-	224.11	4,496.67	.521	44.6
	Re-Erad.	3,330	248,605	-	2,251.87	-	-	-	-	2,251.87	.679	74.7
	Total	11,953	633,382	-	4,987.18	75.63	1471.62	-	224.11	6,758.54	.565	53.4
Allegheny National Forest	Initial	2,249	211,829	8	801.92	136.56	507.71	-	-	1,446.19	.643	94.2
	Re-Erad.	627	19,993	-	-	71.29	272.06	-	-	343.35	.547	31.9
	Total	2,876	231,822	8	801.92	207.85	779.77	-	-	1,789.54	.622	80.6
Totals	Initial	28,726	1,356,503	250	13,121.13	3358.02	1979.33	8345.53	224.11	27,028.12	.940	47.2
	Re-Erad.	6,589	284,618	-	4,085.46	71.29	272.06	-	-	4,428.81	.672	43.2
	Total	35,315	1,641,121	250	17,206.59	3429.31	2251.39	8345.53	224.11	31,456.93	.944	46.5

Basis of costs: See Page 18 for work performed under Regular Cooperative Program and Page 28 for E.C.W. Activities.

Data in Table 33 included in preceding summaries of work under Regular Cooperative and E.C.W. Programs.

SUMMARY OF INITIAL RIBES ERADICATION WORK IN NORTHEASTERN STATES 1918-1934 I. I.

STATE	Year 1918						Year 1919						Year 1920						Year 1921						Totals 1918-1921																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
	Acres	No. Ribes		Total Cost	Per Acre		Acres	No. Ribes		Total Cost	Per Acre		Acres	No. Ribes		Total Cost	Per Acre		Acres	No. Ribes		Total Cost	Per Acre		Acres	No. Ribes		Total Cost	Per Acre																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
		Wild	Cult.		Cost	Cost		Cost	Cost		Cost	Cost		Cost	Cost		Cost	Cost		Cost	Cost		Cost	Cost		Cost	Cost		Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost	Cost

STATE	Year 1922					Year 1923					Year 1924					Year 1925					Year 1926								
	Acres	No. Ribes		Total Cost	Per Acre Cost	Acres	No. Ribes		Total Cost	Per Acre Cost	Acres	No. Ribes		Total Cost	Per Acre Cost	Acres	No. Ribes		Total Cost	Per Acre Cost	Acres	No. Ribes		Total Cost	Per Acre Cost				
		Wild	Cult.				Wild	Cult.				Wild	Cult.				Wild	Cult.				Wild	Cult.			Wild	Cult.		
MAINE	190,209	449,287	3,688	8,012.48	.042	2.3	336,432	1,208,998	12,095	193	3.6	399,907	1,829,349	11,599	227,34.31	.057	4.6	274,034	1,700,870	15,041	20,070.86	.073	6.2	303,709	3,052,380	17,552	20,915.42	.089	10.1
N.H.	178,489	1,816,829	9,061	28,706.64	.161	10.2	267,807	3,490,130	24,779	193	13.0	324,734	4,073,359	14,941	52,599.44	.162	12.4	237,702	3,180,730	5,996	42,408.99	.178	13.4	178,287	2,968,421	3,612	41,199.70	.231	16.6
V.T.	13,512	201,906	812	6,150.24	.455	15.0	23,950	272,246	1,234	337	11.4	24,714	177,107	592	8,951.78	.362	7.2	23,226	310,717	640	8,387.67	.340	12.3	16,800	227,908	1,404	8,281.99	.433	13.6
MASS.	64,302	1,578,294	2,368	13,375.09	.208	24.5	104,908	1,730,693	14,887	145	9.5	150,465	2,023,070	38,777	34,648.43	.219	12.8	190,945	745,446	33,610	21,355.13	.112	3.9	183,085	1,078,821	25,596	26,697.59	.146	3.9
R.I.	11,500	11,764	132	1,840.00	.160	1.0	28,068	13,011	1,464	.061	0.5	47,480	22,361	2,953	2,092.01	.044	0.5	25,640	4,994	1,928	1,519.04	.059	0.2	2,537	16,438	203	1,674.23	.066	0.6
CONN.	6,175	137,501	-	4,651.50	.753	22.2	14,062	288,333	248	488	20.5	17,215	289,034	2,447	5,981.73	.347	16.7	13,735	270,747	680	4,592.03	.334	19.7	21,687	175,157	318	4,773.59	.210	8.1
N.Y.	11,030	654,231	-	34,082.70	3.09	59.3	15,459	9,06,617	367	2,87	57.3	25,198	1,061,368	2,501	40,907.02	1.62	42.1	33,611	99,344.5	1,153	35,323.38	1.05	29.6	36,994	1,075,841	2,087	37,052.10	1.00	29.1
TOTALS	475,217	4,849,812	16,061	96,818.65	.204	10.2	870,766	7,930,028	53,074	182	10.2	997,793	9,425,728	73,810	167,914.72	.168	9.4	800,893	7,206,949	59,048	133,837.10	.167	9.0	766,099	8,594,966	50,772	140,596.70	.184	11.2

STATE	Year 1927					Year 1928					Year 1929					Year 1930					Year 1931									
	Acres	No. Ribes		Total Cost	Per Acre Cost	Acres	No. Ribes		Total Cost	Per Acre Cost	Acres	No. Ribes		Total Cost	Per Acre Cost	Acres	No. Ribes		Total Cost	Per Acre Cost	Acres	No. Ribes		Total Cost	Per Acre Cost					
		Wild	Cult.				Wild	Cult.				Wild	Cult.				Wild	Cult.				Wild	Cult.			Wild	Cult.			
MAINE	260,471	2,582,159	10,225	22,075.46	.085	9.9	202,359	1,577,254	8,778	22,417.60	.111	78	23,445.9	2,129,942	18,244	21,953.78	.094	9.1	197,075	2,098,207	10,357	23,463.51	.119	10.6	114,544	1,286,322	4,846	18,429.69	.161	11.1
N.H.	151,985	2,176,006	2,169	31,222.55	.205	14.3	145,329	2,041,412	4,076	31,572.35	.217	140	155,719	1,866,534	6,178	30,961.38	.199	12.0	218,137	2,807,150	3,192	47,766.94	.219	12.9	158,004	2,891,692	4,022	46,596.31	.295	18.3
VT.	17,090	262,360	314	7,392.22	.433	15.4	14,475	147,930	144	6,020.30	.416	102	10,295	87,888	397	5,245.87	.510	8.5	72,45	74,039	83	4,243.45	.596	10.2	8,125	38,827	129	3,144.30	.387	4.8
MASS.	284,411	864,090	32,733	26,077.95	.092	3.0	227,058	497,963	34,146	28,519.45	.126	22	243,879	885,565	32,226	29,827.84	.122	3.4	108,683	996,376	8,072	15,294.78	.141	9.2	29,815	128,179	4,270	6,491.93	.218	4.3
R.I.	9,785	22,279	521	1,700.86	.175	2.3	21,461	17,777	615	2,629.64	.119	0.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
CONN.	12,068	40,441	715	1,784.63	.148	3.4	73,981	98,412	1,289	672.734	.091	1.3	24,394	127,124	9,471	7,128.74	.251	4.5	27,253	33,330	3,140	3,013.79	.111	1.2	1,510	2,5776	260	730.05	.483	17.1
N.Y.	61,676	1,393,905	2,207	44,869.78	.727	22.6	85,454	1,740,941	9,411	45,570.13	.533	540	118,465	1,904,238	6,077	58,923.31	.497	16.1	89,894	1,306,498	4,302	47,116.14	.524	14.5	118,353	1,484,224	4,956	55,433.61	.468	12.5
SUB-TOTALS N.E. - N.Y.	797,436	7,341,240	48,884	135,063.45	.169	9.2	770,117	6,121,689	58,459	143,456.81	.186	7.9	791,211	6,941,508	72,593	154,046.92	.195	8.8	648,287	7,313,600	29,146	140,898.61	.217	11.3	430,351	5,855,020	18,483	130,825.89	.304	13.6
PA.	No	Regular	Ribes	Eradication Work	was performed	in Penn.	performed	in Penn.	prior to 1929	to 1929	to 1929	to 1929	5,459	329,670	561	3,756.26	.688	60.4	11,745	656,768	863	8,631.49	.735	53.9	24,016	828,958	703	9,979.18	.416	34.5
ALL STATES	797,436	7,341,240	48,884	135,063.45	.169	9.2	770,117	6,121,689	58,459	143,456.81	.186	7.9	796,670	7,270,978	73,154	157,803.10	.198	9.1	660,032	7,970,368	30,009	149,530.09	.227	12.1	454,367	6,683,975	19,186	140,805.07	.310	14.7

[illegible]

INCLUDES ALL RIBES ERADICATION WORK PERFORMED UNDER ALL PROGRAMS. HOWEVER, ALL BLACK CURRANT ELIMINATION AND NURSERY SANITATION PROJECTS SINCE 1929 ARE EXCLUDED

SUMMARY OF RIBES RE-ERADICATION WORK IN NORTHEASTERN STATES 1923-1934 Incl.

STATE	Year 1923						Year 1924						Year 1925						Year 1926						Year 1927					
	Acres Re-examined		No. Ribes		Per Acre Cost	Total Cost	Acres Re-examined		No. Ribes		Per Acre Cost	Total Cost	Acres Re-examined		No. Ribes		Per Acre Cost	Total Cost	Acres Re-examined		No. Ribes		Per Acre Cost	Total Cost	Acres Re-examined		No. Ribes		Per Acre Cost	Total Cost
	Wild	Cult.	Wild	Cult.			Wild	Cult.	Wild	Cult.			Wild	Cult.	Wild	Cult.			Wild	Cult.	Wild	Cult.			Wild	Cult.	Wild	Cult.		
MAINE	20	—	284	—	5.80	1,640	1,240	—	17,608	—	—	359,60	280	14.2	9,145	—	186.76	290	14.2	728	54,199	10	364.59	508	74.4	1,010	19,480	—	438.25	433
N.H.	430	—	6,603	—	46.82	203,406	6,668	48	15,168	48	—	990.19	113	11.3	113,221	406	2,516.61	1,05	4.7	32,046	159,488	677	4,406.89	137	50	74,034	486,160	341	9,850.29	133
V.T.	1240	—	6,324	—	417.88	516,337	974	—	4,967	—	—	328.24	337	5.1	7,120	—	470.45	337	5.1	5,850	29,835	—	1,971.45	337	5.1	2,315	18,421	—	841.73	364
MASS.	16,943	—	25,414	—	1,609.59	270,995	1,311	—	1,966	—	—	124.55	995	1.5	6,384	—	404.32	995	1.5	6,145	9,218	—	583.78	995	1.5	14,942	42,400	27	1,862.08	125
R.I.	3,240	—	1,264	—	194.40	628,064	5,000	—	2,350	—	—	210.00	442	0.5	—	—	—	—	—	2,670	1,197	—	250.00	994	0.5	—	—	—	—	—
CONN.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
N.Y.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
SUB-TOTALS N.E. - N.Y.	21,873	—	39,889	—	2,274.49	104,18	15,193	48	102,059	48	—	2,013.18	133	6.7	139,340	410	4,945.39	145	4.1	49,088	263,105	699	7,941.13	162	5.4	102,416	705,586	861	20,555.10	201
PA.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
ALL STATES	21,873	—	39,889	—	2,274.49	104,18	15,193	48	102,059	48	—	2,013.18	133	6.7	139,340	410	4,945.39	145	4.1	49,088	263,105	699	7,941.13	162	5.4	102,416	705,586	861	20,555.10	201

STATE	Year 1928						Year 1929						Year 1930						Year 1931						Year 1932					
	Acres Re-examined		No. Ribes		Per Acre Cost	Total Cost	Acres Re-examined		No. Ribes		Per Acre Cost	Total Cost	Acres Re-examined		No. Ribes		Per Acre Cost	Total Cost	Acres Re-examined		No. Ribes		Per Acre Cost	Total Cost	Acres Re-examined		No. Ribes		Per Acre Cost	Total Cost
	Wild	Cult.	Wild	Cult.			Wild	Cult.	Wild	Cult.			Wild	Cult.	Wild	Cult.			Wild	Cult.	Wild	Cult.			Wild	Cult.	Wild	Cult.		
MAINE	108	—	18,538	—	180.30	3,369	232	—	34,771	—	—	234.60	101	149.9	27,570	216	578.95	715	34.0	2,165	70,086	134	1,395.09	644	32.4	30,436	287,497	1157	7285.10	239
N.H.	83,201	—	261,126	—	9,272.61	2,411,111	96,425	466	236,445	466	—	9,648.02	100	2.5	33,080	5	829.27	123	4.9	21,357	130,583	200	3,649.78	171	6.1	17,308	208,690	79	2,942.97	170
V.T.	2,292	—	11,410	—	866.07	1,978,378	3,005	56	22,786	56	—	1,249.60	416	7.6	20,572	25	1,660.26	283	3.5	3,535	10,287	3	980.77	277	2.9	4,373	24,251	697	1,414.36	323
MASS.	15,875	—	25,437	—	1,249.81	19,719,16	20,961	655	16,194	655	—	2,658.67	127	0.8	27,995	83	2,825.55	101	1.0	85,714	136,036	2,388	6,624.90	277	1.6	148,022	227,776	2,104	13,441.03	991
R.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
CONN.	1,124	—	24,973	—	1,286.50	1,642,22	6,203	—	7,283	1451	—	905.80	146	1.2	10,829	455	1,227.67	524	4.6	4,540	85,051	—	4,005.85	882	18.7	7,337	134,456	1,216	4,592.40	628
N.Y.	10,395	—	216,828	—	5,035.30	5,305,30	9,291	668	78,433	668	—	6,543.17	704	8.4	95,691	169	3,014.16	362	11.5	5,205	18,706	67	1,331.05	256	3.6	10,822	72,265	340	4,116.81	380
SUB-TOTALS N.E. - N.Y.	113,595	—	558,312	—	17,890.59	157,49	136,117	3296	395,912	3296	—	21,239.86	156	2.9	215,737	953	10,135.86	194	4.1	122,516	450,759	2,792	17,987.44	147	3.7	224,273	960,530	5,668	35,210.98	157
PA.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
ALL STATES	113,595	—	558,312	—	17,890.59	157,49	136,117	3296	395,912	3296	—	21,239.86	156	2.9	215,737	953	10,135.86	194	4.1	122,516	450,759	2,792	17,987.44	147	3.7	224,273	960,530	5,668	35,210.98	157

STATE	Year 1933						Year 1934						Totals 1923 - 1934					
	Acres Re-examined		No. Ribes		Per Acre Cost	Total Cost	Acres Re-examined		No. Ribes		Per Acre Cost	Total Cost	Acres Re-examined		No. Ribes		Per Acre Cost	Total Cost
	Wild	Cult.	Wild	Cult.			Wild	Cult.	Wild	Cult.			Wild	Cult.	Wild	Cult.		
MAINE	23,047	—	365,439	—	6900.38	2,489,38	28,823	—	290,762	—	—	7,711.38	89,863	—	1,195,389	—	1,613	25,640.80
N.H.	21,453	—	571,195	—	8,232.92	4,484,266	10,967	—	388,588	—	—	4,815.13	394,630	—	2,680,347	—	3,371	57,202.10
V.T.	9,939	—	90,521	—	7,197.26	657,26	12,690	—	258,508	—	—	10,762.31	53,486	—	505,002	—	836	28,160.38
MASS.	83,104	—	330,385	—	14,218.90	4,791,171	110,419	—	256,113	—	—	14,413.42	535,800	—	1,105,318	—	9,584	60,016.60
R.I.	5,233	—	3,459	—	4,433.53	23,487	41,726	—	74,730	—	—	13,297.35	63844	—	88,595	—	693	19,803.59
CONN.	42,513	—	300,299	—	16,628.59	5,391,71	36,537	—	782,593	—	—	24,768.31	112,973	—	1,467,587	—	3889	61,453.72
N.Y.	65,550	—	1,268,914	—	41,450.32	5,432,632	81,868	—	619,259	—	—	37,950.22	195,142	—	2,389,756	—	7,077	100,696.85
SUB-TOTALS N.E. - N.Y.	250,839	—	2,930,212	—	99,061.90	9,906,197	323,030	—	2,670,553	—	—	113,718.12	1,445,138	—	9,431,994	—	27,063	352,974.04
PA.	24,871	—	991,852	—	29,477.37	2,947,737	28,155	—	1,029,235	—	—	42,690.37	56,862	—	2,117,530	—	120	75,061.52
ALL STATES	275,710	—	3,922,064	—	128,539.27	12,853,927	351,185	—	3,699,788	—	—	156,408.49	1,502,000	—	11,549,524	—	27,183	428,035.56

INCLUDES ALL RIBES ERADICATION WORK PERFORMED UNDER ALL PROGRAMS. HOWEVER, ALL BLACK CURRANT ELIMINATION AND NURSERY SANITATION PROJECTS SINCE 1929 ARE EXCLUDED.

SUMMARY OF RIBES ERADICATION WORK IN NORTHEASTERN STATES 1918-1934 Incl. (INITIAL AND RE-ERADICATION WORK)

STATE	Year 1918						Year 1919						Year 1920						Year 1921						Totals 1918-1921							
	Acres		No. Ribes		Total		Per Acre		Acres		No. Ribes		Total		Per Acre		Acres		No. Ribes		Total		Per Acre		Acres		No. Ribes		Total		Per Acre	
	Wild	Cult.	Cost	Cost	Cost	Cost	Cost	Cost	Wild	Cult.	Cost	Cost	Cost	Cost	Cost	Cost	Wild	Cult.	Cost	Cost	Cost	Cost	Cost	Cost	Wild	Cult.	Cost	Cost	Cost	Cost	Cost	Cost
MAINE																																
N.H.	4,910	91,862	235	5,179.23	1.05	18.70	9,216	333,775	—	6,136.10	.67	36.20	10,283	176,788	636	4,994.05	.49	17.19	156,221	56,304	708	3,398.76	.02	.36	180,630	658,129	1,579	19,708.14	.11	3.6		
V.T.	66,292	959,315	8,427	26,089.09	.39	14.50	163,413	1,659,936	21,171	35,371.86	.22	10.15	203,373	2,061,996	22,206	37,038.66	.18	10.10	137,827	1,654,443	9,713	22,640.93	.16	12.00	570,905	6,335,690	61,517	121,140.54	.21	11.1		
MASS.	4,698	78,563	77	5,182.64	1.10	16.80	2,460	96,749	—	2,214.26	.90	39.32	4,501	36,294	74	3,391.60	.75	8.06	6,319	60,537	131	3,464.01	.55	9.58	17,978	272,143	282	14,252.51	.79	15.1		
R.I.	18,706	356,067	1,919	15,805.31	.84	19.09	19,849	201,832	2,374	8,156.18	.75	18.60	19,389	1,224,306	1,421	10,422.87	.54	63.14	32,933	632,618	4,631	10,290.54	.31	19.20	81,877	2,414,873	10,345	44,674.90	.55	29.5		
CONN.	12,715	13,927	492	3,527.97	.28	1.09	40,411	45,320	1,657	5,609.74	.14	1.12	23,164	5,973	1,550	3,796.92	.16	.26	26,971	16,022	552	3,826.92	.14	.59	103,261	81,242	4,251	16,761.55	.16	0.8		
N.Y.	800	10,000	—	Est. 400.00	.50	12.80	2,500	31,000	—	2,323.34	.93	12.40	2,170	42,793	2	1,974.70	.91	19.72	8,000	41,470	6	2,664.07	.33	5.18	13,470	125,263	8	7,362.11	.56	9.3		
TOTALS	29,337	904,153	11,000	43,679.16	1.48	30.81	23,194	2,181,286	2,675	79,689.08	3.43	94.04	7,438	753,790	47	32,043.94	4.31	101.30	14,183	1,275,709	21	46,600.73	3.29	69.30	74,152	5,114,938	13,743	202,012.91	2.72	69.0		
	137,458	2,413,887	22,150	99,863.40	.79	17.60	252,043	4,549,948	27,871	139,500.56	.55	18.10	270,318	4,301,940	25,936	93,662.74	.35	15.90	382,454	3,737,103	15,762	92,885.96	.24	9.80	1,042,273	15,002,878	91,725	425,912.66	.41	14.4		

STATE	Year 1922						Year 1923						Year 1924						Year 1925						Year 1926					
	No. Ribes		Total Cost	Per Acre		Acres	No. Ribes		Total Cost	Per Acre		Acres	No. Ribes		Total Cost	Per Acre		Acres	No. Ribes		Total Cost	Per Acre		Acres	No. Ribes		Total Cost	Per Acre		Acres
	Wild	Cult.		Cost	Ribes		Wild	Cult.		Cost	Ribes		Wild	Cult.		Cost	Ribes		Wild	Cult.		Cost	Ribes		Wild	Cult.		Cost	Ribes	
MAINE	190,209	449,287	3,688	8,012.48	.042	2.3	336,452	1,209,282	12,095	19,333.16	.057	3.6	401,227	1,848,957	11,599	23,093.91	.057	4.6	274,678	1,710,015	15,041	20,257.62	.073	6.2	304,437	3,106,579	17,562	21,280.01	.069	10.2
N.H.	178,489	1,616,829	9,061	28,706.64	.161	10.2	268,237	3,496,733	24,779	51,651.48	.192	13.3	331,402	4,098,527	14,989	53,590.23	.162	12.4	261,710	3,293,951	6,402	44,925.60	.172	12.6	210,333	3,127,909	4,289	45,606.67	.217	14.9
V.T.	13,512	201,906	812	6,150.24	.455	13.0	25,190	278,570	1,234	8,498.43	.337	11.0	25,688	182,154	592	9,280.02	.361	7.1	26,622	317,837	640	9,058.12	.340	11.9	22,650	257,743	1,404	10,253.44	.453	11.4
MASS.	64,302	1,578,294	2,368	13,375.09	.208	24.5	201,931	1,776,107	14,887	26,411.92	.140	7.8	159,776	2,025,036	38,777	34,772.98	.217	12.6	195,201	751,830	33,610	21,759.45	.111	3.8	189,230	1,088,039	25,596	27,281.37	.144	5.7
R.I.	11,500	11,764	132	1,840.00	.160	1.0	31,308	14,275	1,464	1,895.96	.060	0.5	52,480	24,711	2,993	2,302.01	.044	.5	25,640	4,994	1,928	1,519.04	.059	0.2	28,207	17,635	203	1,924.23	.068	0.6
CONN.	6,175	137,504	—	4,651.50	.353	22.2	14,062	288,333	248	6,863.14	.488	20.5	17,215	289,034	2,447	5,981.73	.347	16.7	16,106	272,797	684	5,495.30	.341	16.9	22,257	182,826	330	5,062.35	.227	8.2
N.Y.	11,030	654,231	—	34,082.70	3.09	59.3	15,459	906,617	367	44,229.78	2.87	57.3	25,198	1,061,368	2,501	40,907.02	1.62	42.1	34,937	994,865	1,153	35,787.36	1.02	28.4	38,073	1,077,340	2,087	37,129.76	.975	28.3
TOTALS	475,217	4,849,812	16,061	96,818.65	.204	10.2	892,639	7,963,917	55,074	160,883.87	.180	8.9	1,012,986	9,527,787	73,838	169,927.90	.168	9.4	834,894	7,346,289	59,458	138,802.49	.166	8.8	815,187	8,858,071	51,471	148,537.83	.182	10.9

STATE	Year 1927						Year 1928						Year 1929						Year 1930						Year 1931					
	Acres	No. Ribes		Total Cost	Per Acre Cost Ribes	Acres	No. Ribes		Total Cost	Per Acre Cost Ribes	Acres	No. Ribes		Total Cost	Per Acre Cost Ribes	Acres	No. Ribes		Total Cost	Per Acre Cost Ribes	Acres	No. Ribes		Total Cost	Per Acre Cost Ribes	Acres	No. Ribes		Total Cost	Per Acre Cost Ribes
		Wild	Cult.				Wild	Cult.				Wild	Cult.				Wild	Cult.				Wild	Cult.				Wild	Cult.		
MAINE	261,481	2,601,639	10,225	22,513.71	.086	9.9	203,067	1,595,792	8,778	22,597.90	.111	7.9	234,691	2,164,713	18,244	22,194.38	.095	9.2	197,885	2,123,777	10,573	24,042.46	.121	10.7	116,709	1,356,418	4,980	19,824.78	.169	11.6
N.H.	206,019	2,672,166	2,510	41,072.84	.182	11.8	228,530	2,302,538	5,220	40,844.96	.179	10.1	252,144	2,102,999	6,644	40,609.40	.161	8.3	224,870	2,840,230	3,197	48,596.21	.216	12.6	179,361	3,022,275	4,222	50,246.09	.280	16.9
V.T.	19,405	280,781	314	8,233.95	.424	14.4	16,767	159,340	196	6,886.37	.411	9.5	13,300	110,671	453	6,495.47	.488	8.3	13,122	94,611	108	5,903.71	.450	7.2	11,660	49,114	132	4,125.07	.354	4.2
MASS.	299,333	908,490	32,760	27,940.03	.093	3.1	242,933	523,400	34,153	29,769.26	.123	2.2	264,840	841,759	32,881	32,486.51	.123	3.2	136,791	1,024,371	8,155	18,120.33	.132	7.5	115,529	264,215	6,658	13,116.83	.114	2.3
R.I.	9,735	22,279	521	1,700.86	.175	2.3	21,461	17,777	615	2,629.64	.119	0.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
CONN.	20,904	152,825	1,208	8,633.20	.413	7.3	75,105	123,385	1,364	8,013.84	.107	1.6	34,597	134,407	10,922	8,034.54	.232	3.9	29,595	44,159	3,995	4,241.46	.143	1.5	6,050	110,827	260	4,735.90	.763	18.3
N. Y.	62,955	1,410,646	2,207	45,523.96	.723	22.4	95,849	1,957,769	10,235	50,605.43	.528	20.4	127,756	1,982,671	6,745	65,466.48	.512	15.5	98,221	1,402,189	4,471	50,130.30	.510	14.3	123,558	1,502,930	5,023	56,764.66	.459	12.2
SUB-TOTALS	899,852	8,046,826	49,745	155,618.55	.173	8.9	803,712	6,680,001	60,561	161,347.40	.183	7.6	927,368	7,937,280	75,889	175,286.78	.189	7.9	700,484	7,529,337	30,099	151,034.47	.216	10.7	552,887	6,305,779	21,275	148,813.59	.289	11.4
N.E. - N. Y.	No	Regular	Ribes	Eradication	Work	was	performed	in Penn.	Prior	to 1929.	—	—	54,59	329,670	561	3,756.26	.688	60.4	11,145	656,768	863	8,631.48	.735	55.9	25,424	868,342	703	11,026.51	.434	34.2
PA.	899,852	8,046,826	49,745	155,618.55	.173	8.9	803,712	6,680,001	60,561	161,347.40	.183	7.6	932,787	7,666,890	76,450	179,043.04	.192	8.2	712,229	8,186,105	30,962	159,665.95	.224	11.5	572,291	7,174,121	21,978	159,839.84	.276	12.4
ALL STATES	899,852	8,046,826	49,745	155,618.55	.173	8.9	803,712	6,680,001	60,561	161,347.40	.183	7.6	932,787	7,666,890	76,450	179,043.04	.192	8.2	712,229	8,186,105	30,962	159,665.95	.224	11.5	572,291	7,174,121	21,978	159,839.84	.276	12.4

STATE	Year 1932						Year 1933						Year 1934				
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PROGRESS IN ESTABLISHING AND MAINTAINING BLISTER RUST CONTROL — NORTHEASTERN STATES 1918-1934 INCLUSIVE

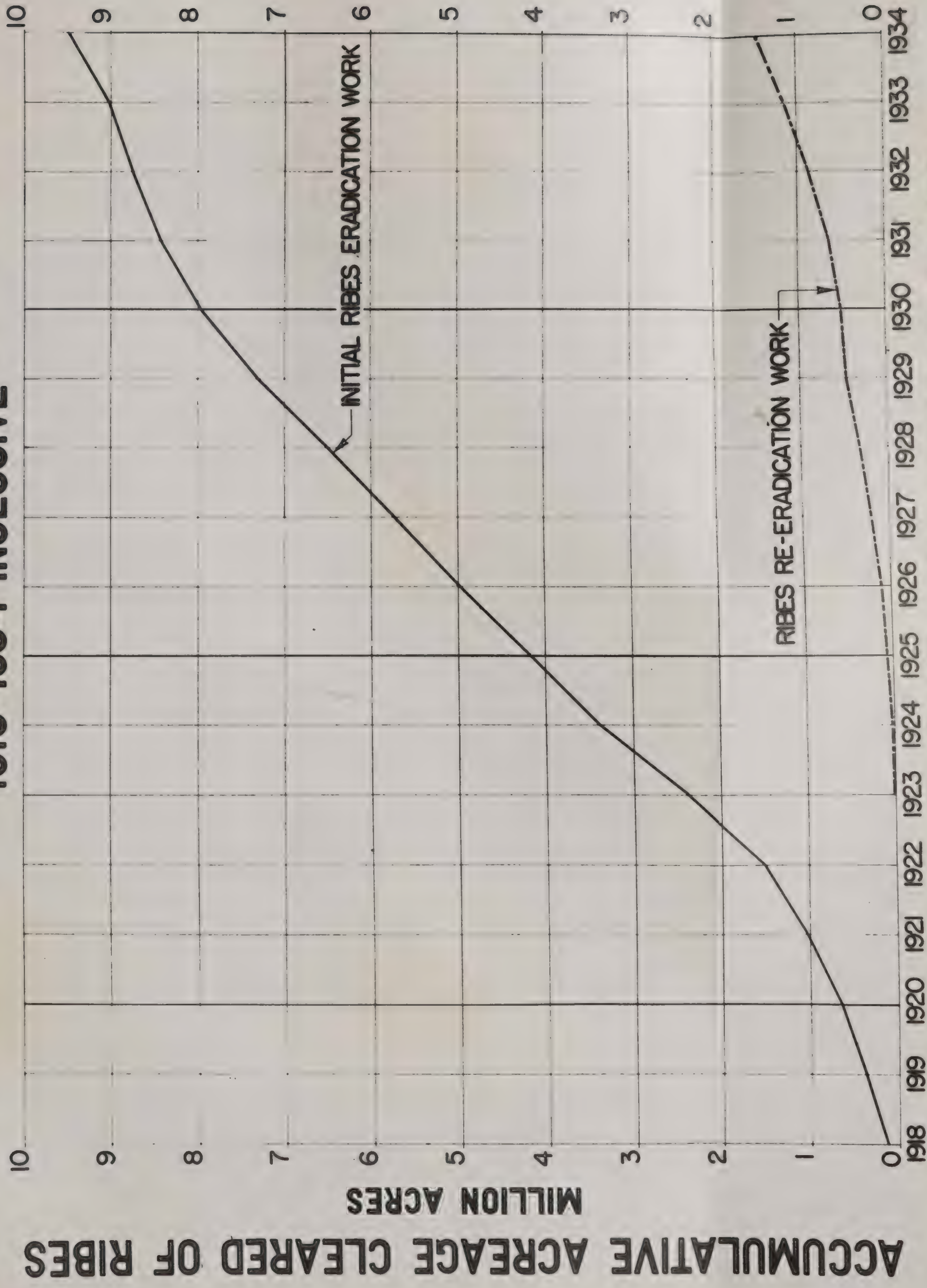


Table 37. - STATUS OF RIBES ERADICATION WORK IN NORTHEASTERN STATES - DECEMBER, 1934.

Initial Control Work											
State	Total Control Area			Acreage Worked (1)			Percentage of Total (2) Control Area Worked	Acreage Still To Be Worked			Est. No. 8 Hr. (3) Days Required to do Remaining Initial Work
	White Pine	Pro-tection Zones	Total	White Pine	Zones	Total		White Pine	Zones	Total	
Maine	1,781,062	2,310,671	4,091,733	1,266,335	1,641,756	2,908,091	71.1	514,727	668,915	1,183,642	232,087
N. H.	1,544,033	1,786,350	3,330,383	1,307,796	1,511,779	2,819,575	84.1	236,237	274,571	510,808	60,810
Vt.	120,782	250,644	371,426	72,711	150,938	223,649	60.2	48,071	99,706	147,777	29,555
Mass.	932,564	897,473	1,830,037	915,778	882,030	1,797,808	98.2	16,786	15,443	32,229	3,932
R. I.	73,196	230,180	303,376	65,950	207,309	273,259	90.1	7,246	22,871	30,117	4,633
Conn.	139,977	147,557	287,534	129,339	136,261	265,600	92.4	10,638	11,296	21,934	4,387
N. Y.	829,352	958,983	1,788,335	497,611	575,912	1,073,523	60.0	331,741	383,071	714,812	98,605
N. J.	5,600	27,795	33,395	2,712	9,983	12,695	38.0	2,888	17,812	20,700	275
Penna.	119,975	295,976	415,951	32,993	81,422	114,415	27.5	86,982	214,554	301,536	56,894
Totals	5,546,541	6,905,629	12,452,170	4,291,225	5,197,390	9,488,615	76.2	1,255,316	1,708,239	2,963,555	491,178

Re-Eradication Work												
State	Total Acreage Initially Protected 1918-1929 Incl.			Acreage Re-Worked(1)			% Total Control Area Re-Worked	% Area Initially Worked 1918-1929 That Has Been Re-Worked	Acreage Now Needing (4) Re-Exam. For Ribes Regrowth			Est.No.8 Hr(5) Man Days required to do Needed Re-Eradication Work
	White Pine	Pro-tection Zones	Total	White Pine	Pro-tection Zones	Total			White Pine	Pro-tection Zones	Total	
Maine	1,036,296	1,345,994	2,382,290	39,090	50,773	89,863	2.2	3.8	997,206	1,295,221	2,292,427	680,108
N. H.	1,025,884	1,185,073	2,210,957	183,108	211,522	394,630	11.8	17.8	842,776	973,551	1,816,327	162,172
Vt.	53,313	110,727	164,040	17,383	36,103	53,486	14.4	32.6	35,930	74,624	110,554	16,583
Mass.	824,076	794,934	1,619,010	272,722	263,078	535,800	29.3	33.1	551,354	531,856	1,083,210	99,074
R. I.	65,716	206,966	272,682	15,386	48,458	63,844	21.0	23.4	50,330	158,508	208,838	24,097
Conn.	97,783	103,004	200,787	54,726	57,647	112,373	39.1	56.0	43,057	45,357	88,414	13,262
N. Y.	214,386	247,653	462,039	90,546	104,596	195,142	10.9	42.2	123,840	143,057	266,897	27,798
Penna.	1,572	3,887	5,459	16,376	40,486	56,862	13.7	100.0	-	-	-	-
Total	3,319,026	3,998,238	7,317,264	689,337	812,663	1,502,000	12.1	20.5	2,644,493	3,222,174	5,866,667	1,023,094

(1) Excludes nursery sanitation and special black currant elimination projects.

(2) The percentages are the same when based on pine area.

(3) Based on estimates submitted by state leaders and district agents.

(4) Based on acreage initially protected 1918-1929 inclusive, minus acreage already reworked.

(5) Estimated by Boston Office - based on averages for remaining initial work less 25 percent.

Table 31. - STATUS OF RINGS RECAPITULATION WORK IN NORTHEASTERN STATES - DECEMBER, 1940

UNITED STATES DEPARTMENT OF JUSTICE

State	Number of Rings	Number of Rings Recapped	Number of Rings Recapped as of December 31, 1940
Alabama	1	1	1
Arkansas	1	1	1
Delaware	1	1	1
District of Columbia	1	1	1
Florida	1	1	1
Georgia	1	1	1
Illinois	1	1	1
Indiana	1	1	1
Iowa	1	1	1
Kansas	1	1	1
Kentucky	1	1	1
Louisiana	1	1	1
Maine	1	1	1
Massachusetts	1	1	1
Michigan	1	1	1
Minnesota	1	1	1
Mississippi	1	1	1
Missouri	1	1	1
Montana	1	1	1
Nebraska	1	1	1
Nevada	1	1	1
New Hampshire	1	1	1
New Jersey	1	1	1
New Mexico	1	1	1
New York	1	1	1
North Carolina	1	1	1
North Dakota	1	1	1
Ohio	1	1	1
Oklahoma	1	1	1
Oregon	1	1	1
Pennsylvania	1	1	1
Rhode Island	1	1	1
South Carolina	1	1	1
South Dakota	1	1	1
Tennessee	1	1	1
Texas	1	1	1
Vermont	1	1	1
Virginia	1	1	1
Washington	1	1	1
West Virginia	1	1	1
Wisconsin	1	1	1
Wyoming	1	1	1
Total	50	50	50

State	Number of Rings	Number of Rings Recapped	Number of Rings Recapped as of December 31, 1940
Alabama	1	1	1
Arkansas	1	1	1
Delaware	1	1	1
District of Columbia	1	1	1
Florida	1	1	1
Georgia	1	1	1
Illinois	1	1	1
Indiana	1	1	1
Iowa	1	1	1
Kansas	1	1	1
Kentucky	1	1	1
Louisiana	1	1	1
Maine	1	1	1
Massachusetts	1	1	1
Michigan	1	1	1
Minnesota	1	1	1
Mississippi	1	1	1
Missouri	1	1	1
Montana	1	1	1
Nebraska	1	1	1
Nevada	1	1	1
New Hampshire	1	1	1
New Jersey	1	1	1
New Mexico	1	1	1
New York	1	1	1
North Carolina	1	1	1
North Dakota	1	1	1
Ohio	1	1	1
Oklahoma	1	1	1
Oregon	1	1	1
Pennsylvania	1	1	1
Rhode Island	1	1	1
South Carolina	1	1	1
South Dakota	1	1	1
Tennessee	1	1	1
Texas	1	1	1
Vermont	1	1	1
Virginia	1	1	1
Washington	1	1	1
West Virginia	1	1	1
Wisconsin	1	1	1
Wyoming	1	1	1
Total	50	50	50

RECAPITULATION WORK IN NORTHEASTERN STATES - DECEMBER, 1940

STATUS OF INITIAL RIBES ERADICATION WORK IN NORTHEASTERN STATES

DECEMBER 1934

The control area for the initial control work in each state comprises the area initially cleared of Ribes (pine area and protection zones) plus the estimated acreage still in need of such work. The latter is based on township estimates made by the blister rust control agents, except in the following instances where the estimates were made by the Boston Office. The control area in a large number of towns outside the agents' districts in Maine was estimated to include the acreage of all pure pine and mixed pine (30-79% pine in mixture) plus an additional acreage for protection zones equivalent to 30% of this pine area.

The control area for the re-eradication program is based on the total area initially cleared of Ribes during the period 1918 - 1929, inclusive, or on the assumption that all areas initially worked prior to five years ago now need re-examination for Ribes.

In all the Northeastern States, except Vermont and New York, the acreages of white pine are based on data secured during the cartographical survey. In these two states the acreages were estimated as 40% and 60%, respectively, of the control area. The following basis was used in the other states for estimating the white pine acreages in the control areas:

Connecticut and Pennsylvania - total acreage of pure and mixed (30-79%) pine.

WILD 120,430.027
CULT. 55,183.000

Maine - total pine acreage in agents' districts plus acreage of pure and mixed (30-79%) pine outside agents' districts.

Massachusetts - total pine acreage excluding those towns in Suffolk, Barnstable, Essex and Middlesex Counties, where no control work is planned.

TOTAL CONTROL AREA: 12,452,170 ACRES

New Hampshire and Rhode Island - total pine acreage in each state. (The control area in Rhode Island also includes considerable potential pine land.)

New Jersey - total acreage of pure and mixed (21-79%) white pine.

The acreages of white pine in the total area worked or re-worked were computed on the basis of their being the same proportion as the white pine in the total control area in each state.

STATE	ACREAGE OF WHITE PINE
CONN.	1,830,027
MASS.	4,081,733
MAINE	3,330,363
N.H.	1,788,335
N.Y.	33,306
N.J.	415,981
PENN.	303,376
R.I.	371,426
VT.	12,452,170
TOTAL	

PERCENTAGE CONTROL AREA: WORKED UNWORKED

The control area for the initial control work in each state comprises the area initially cleared of Ribes (pine areas and protection zones) plus the estimated acreage still in need of such work. The latter is based on township estimates made by the blaster trust control agents, except in the following instances where the estimates were made by the Boston Office. The control area in a large number of towns outside the agents' districts in Maine was estimated to include the acreage of all pure pine and mixed pine (30-70% pine in mixture) plus an additional acreage for protection zones equivalent to 30% of this pine area.

The control area for the re-eradication program is based on the total area initially cleared of Ribes during the period 1918 - 1929, inclusive, or on the assumption that all areas initially worked prior to 1929 are now need re-examination for Ribes.

In all the Northeastern States, except Vermont and New York, the acreage of white pine is based on data secured during the cartographic survey. In these two states the acreages were estimated as 40% and 60%, respectively, of the control area. The following table was used in the other states for estimating the white pine acreages in the control areas:

Connecticut and Pennsylvania - total acreage of pure and mixed (30-70%) pine.

Maine - total pine acreage in agents' districts plus acreage of pure and mixed (30-70%) pine outside agents' districts.

Massachusetts - total pine acreage excluding those towns in Suffolk, Barnstable, Essex and Middlesex Counties, where no control work is planned.

New Hampshire and Rhode Island - total pine acreage in each state (the control area in Rhode Island also includes considerable potential pine land.)

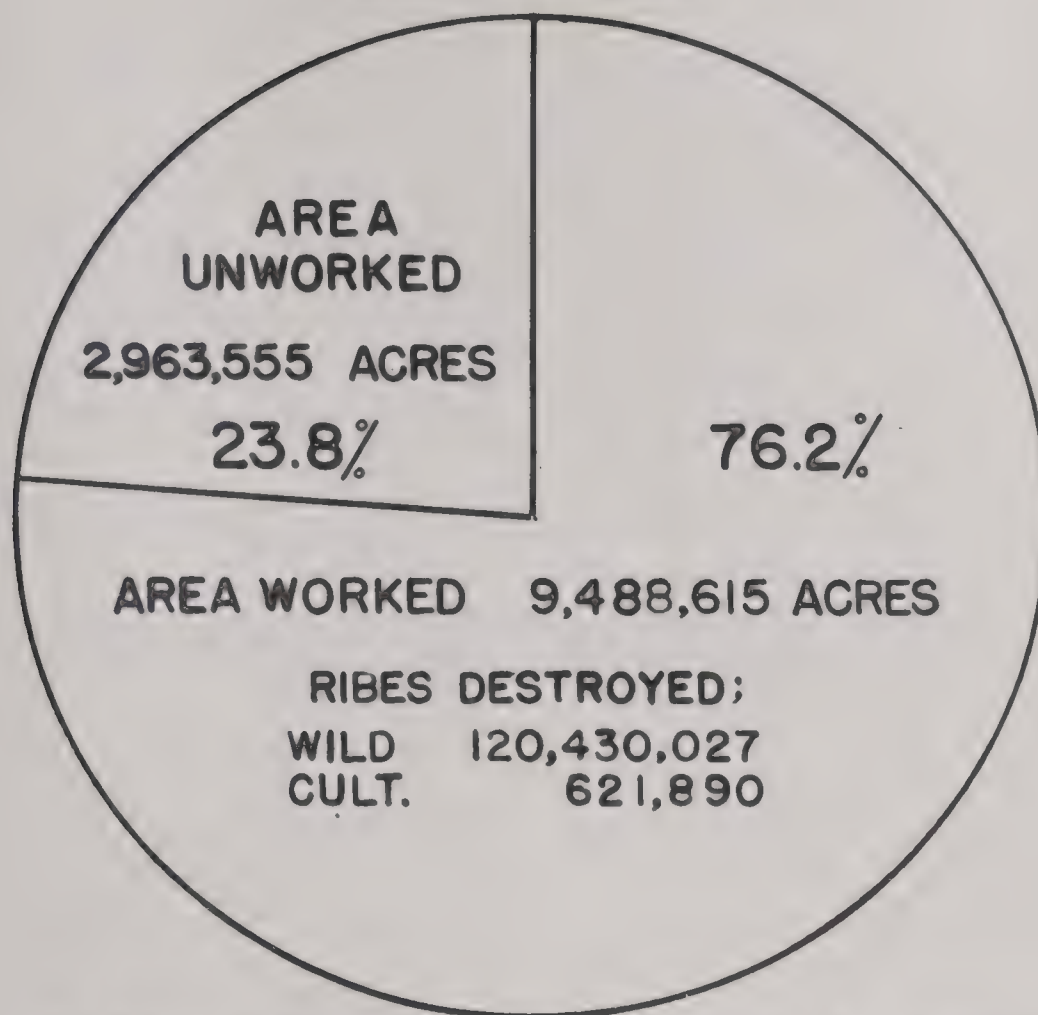
New Jersey - total acreage of pure and mixed (21-72%) white pine.

The acreages of white pine in the total area worked or re-worked were computed on the basis of their being the same proportion as the white pine in the total control area in each state.

STATUS OF INITIAL RIBES ERADICATION WORK IN NORTHEASTERN STATES DECEMBER 1934

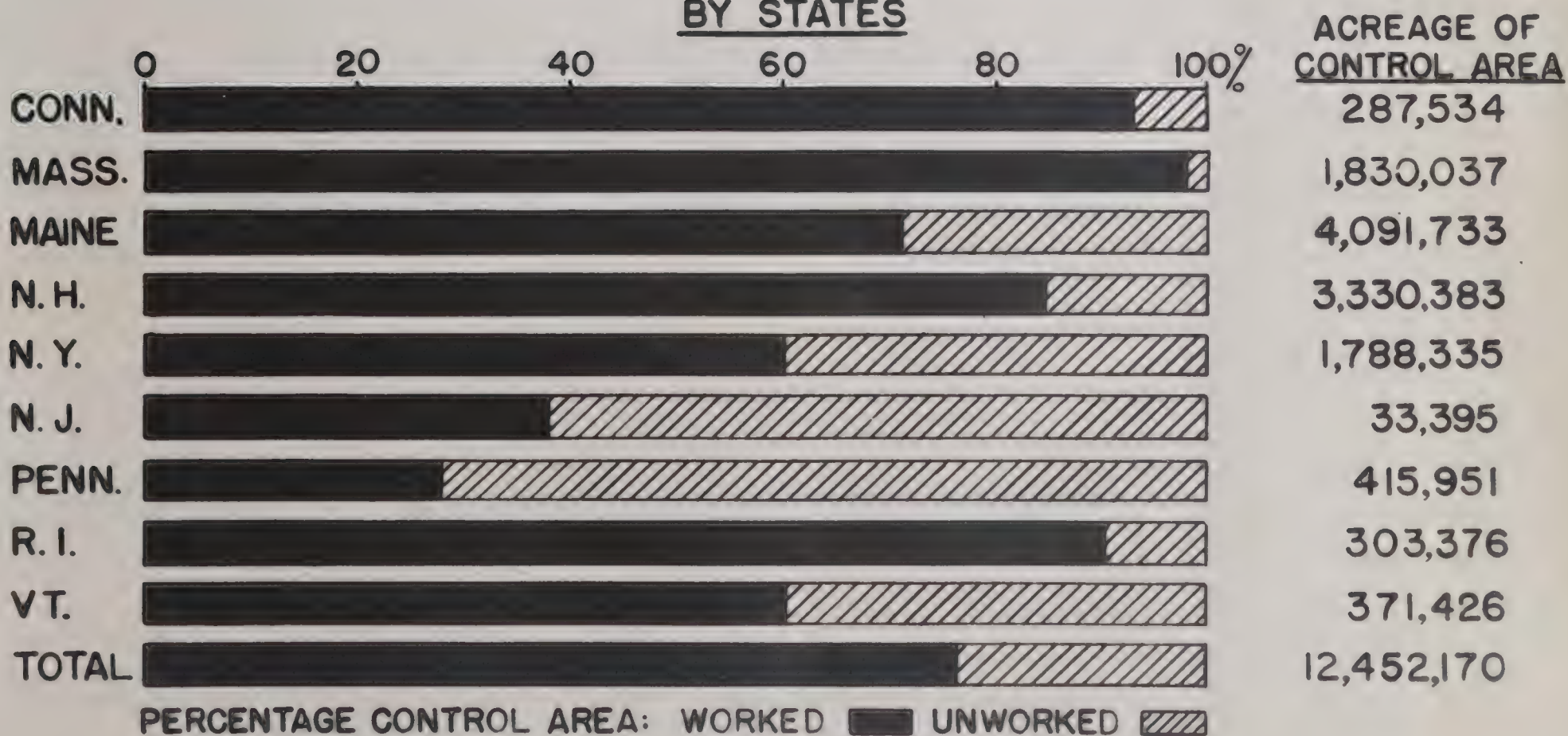
(EXCLUDES SPECIAL NURSERY SANITATION AND BLACK CURRANT ELIMINATION WORK.)

ALL STATES



TOTAL CONTROL AREA: 12,452,170 ACRES

BY STATES



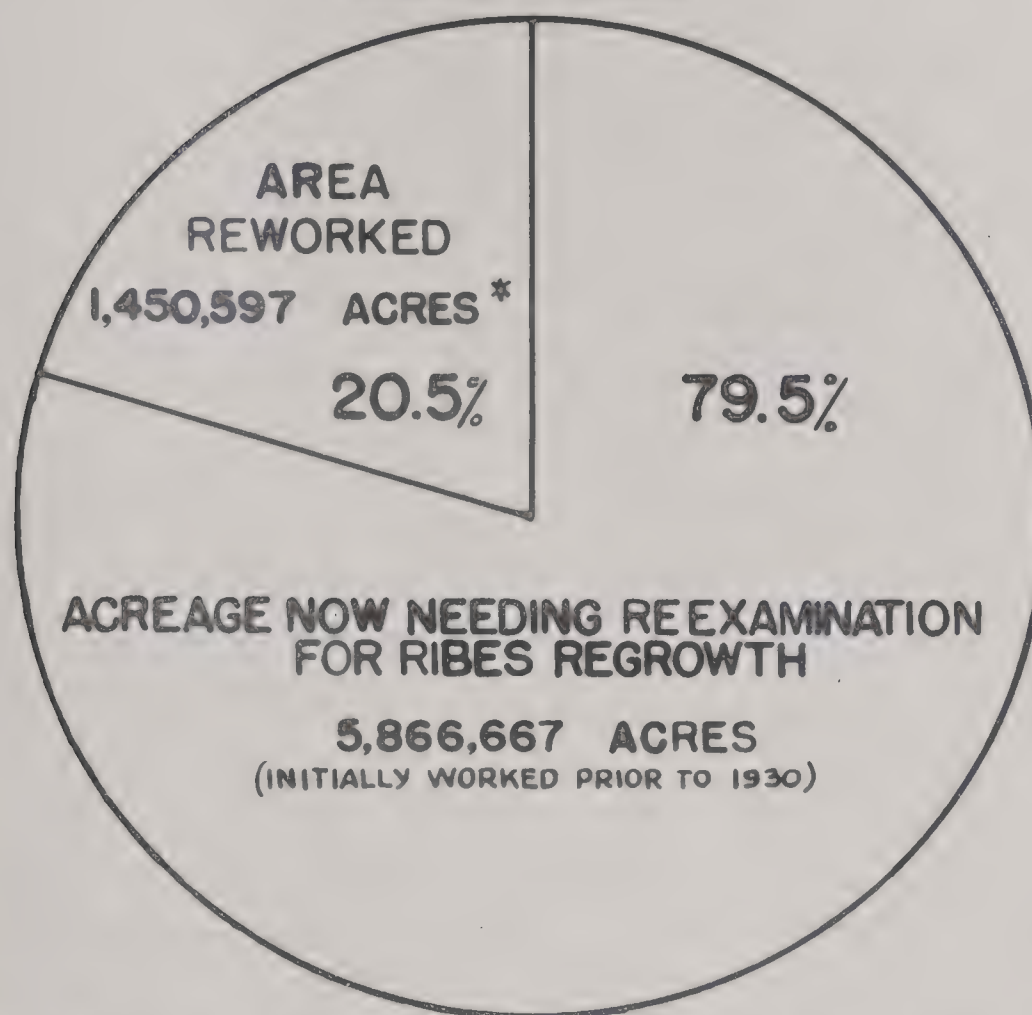
STATUS OF RIBES RE-ERADICATION WORK IN NORTHEASTERN STATES

DECEMBER 1934

(EXCLUDES SPECIAL NURSERY SANITATION AND BLACK CURRANT ELIMINATION PROJECTS)

THE CONTROL AREA FOR THE RE-ERADICATION PROGRAM IS BASED ON THE TOTAL AREA INITIALLY CLEARED OF RIBES DURING THE PERIOD 1918-1929 INCL.

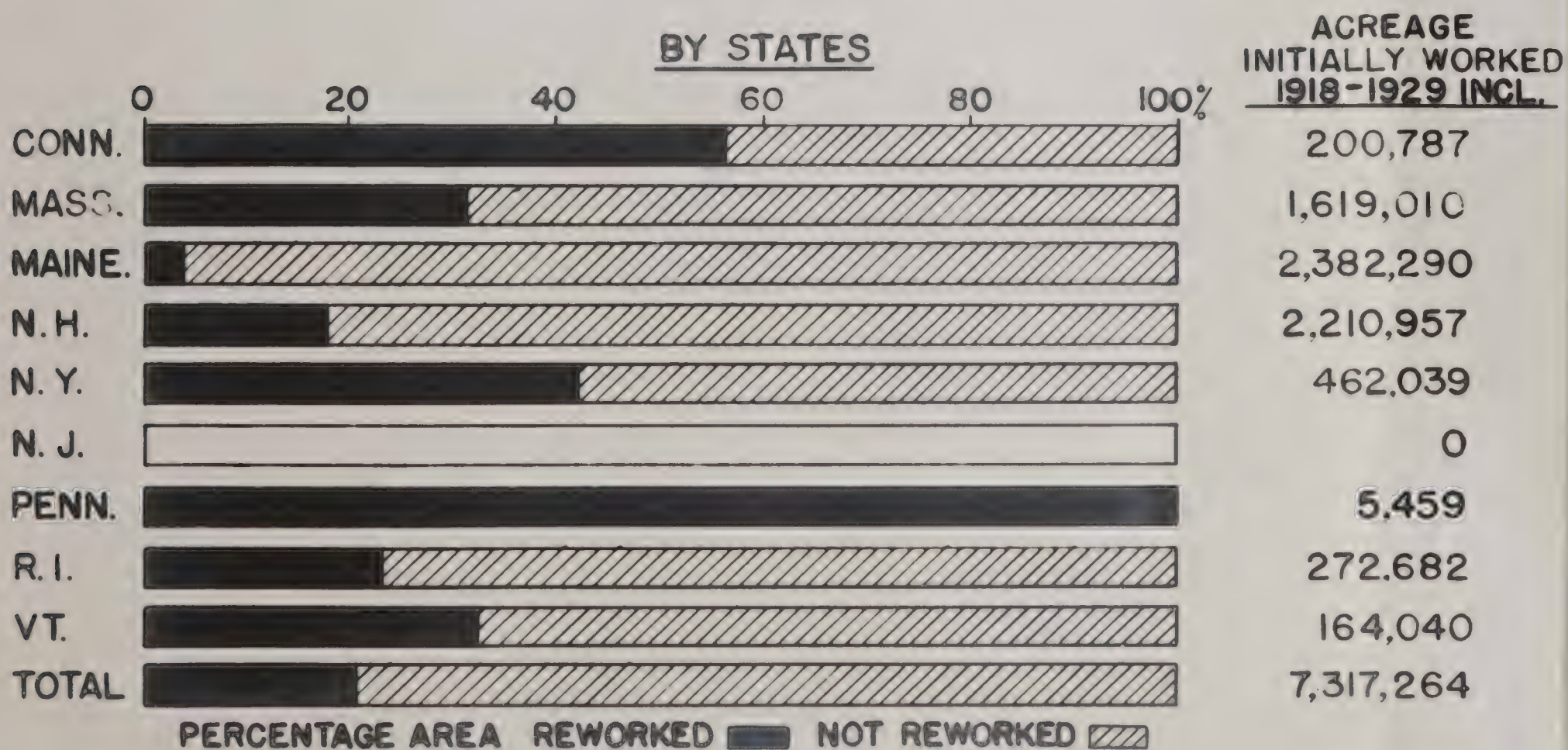
ALL STATES



TOTAL ACREAGE INITIALLY PROTECTED 1918-1929 INCLUSIVE - 7,317,264 ACRES

* AN ADDITIONAL 51,403 ACRES HAVE BEEN REWORKED IN PENNA. IN AREAS INITIALLY CLEARED OF RIBES SINCE 1929.

BY STATES



NURSERY SANITATION

White pines must be grown under absolutely sanitary conditions, as regards Ribes, in order to prevent infection from blister rust. Therefore, it is essential that the white pine stock in each nursery be protected by eradicating all Ribes within 1500 feet and all European black currants from within one mile. All of the Northeastern States, except Rhode Island, have state nurseries growing white pines. Control of the disease has been established and is being maintained in all of these nurseries. Most of the commercial pine growing nurseries are located in Massachusetts, Connecticut, New York, New Jersey, and Pennsylvania. In the other Northeastern States there are only a few such nurseries producing white pines. Sanitation zones have been established around most of the important commercial nurseries in New England. Control work around the private nurseries in New York has been limited due to the relatively few white pines grown and the abundance of cultivated Ribes within the prescribed sanitation zones which would necessitate a large expenditure by the nurserymen for compensation if these bushes were removed. According to the present state blister rust law in New York, effective February 17, 1930, no compensation shall be paid by the state for any species of Ribes destroyed in connection with the establishment of Ribes-free zones around commercial nurseries, but fair compensation must be paid for such bushes by the person owning or operating the protected nursery. None of the commercial nurseries growing white pine in New Jersey have established sanitation zones. In Pennsylvania, six commercial nurseries have taken such action. However, in both states an effort is being made to extend protection to the most important of these commercial nurseries.

Since 1929, a separate record has been kept of the Ribes eradication work performed in connection with the protection of the white pines in the nurseries. Prior to 1930, such control work was included in the regular Ribes eradication summaries.

Special nursery sanitation projects were conducted during 1934 in all of the Northeastern States. The work was performed under the Regular Cooperative, P.W.A., and E.C.W. Programs, and is summarized by programs in the following tables No. 58 to 61. Initial control was established at 8 nurseries, and the sanitation zones around 31 additional nurseries were re-examined for Ribes. A total of 78,889 wild Ribes and 206 cultivated bushes were removed from the 20,437 acres covered in connection with this nursery sanitation work.

The status of nursery sanitation work, in the various Northeastern States, as of December, 1934, is indicated in Table 70.

NURSERY SANITATION

White pines must be grown under absolutely sanitary conditions, as records show. In order to prevent infection from blight must. Therefore, it is essential that the white pine stock in each nursery be protected by eradicating all Ribes within 1500 feet and all European black currants from within one mile. All of the Northeastern States, except Rhode Island, have state nurseries growing white pines. Control of the disease has been established and is being maintained in all of these nurseries. Most of the commercial pine growing nurseries are located in Massachusetts, Connecticut, New York, New Jersey, and Pennsylvania. In the other Northeastern States there are only a few such nurseries producing white pines. Sanitation zones have been established around most of the important commercial nurseries in New England. Control work around the private nurseries in New York has been limited due to the relatively few white pines grown and the abundance of cultivated Ribes within the prescribed sanitation zones which would necessitate a large expenditure by the nurseries for compensation if these bushes were removed. According to the present state blight law in New York, effective February 17, 1930, no compensation shall be paid by the state for any species of Ribes destroyed in connection with the establishment of Ribes-free zones around commercial nurseries, but fair compensation must be paid for such bushes by the person owning or operating the protected nursery. None of the commercial nurseries growing white pine in New Jersey have established sanitation zones. In Pennsylvania, six commercial nurseries have taken such action. However, in both states an effort is being made to extend protection to the most important of these commercial nurseries.

Since 1929, a separate record has been kept of the Ribes eradication work performed in connection with the protection of the white pines in the nurseries. Prior to 1930, such control work was included in the regular Ribes eradication work.

Special nursery sanitation projects were conducted during 1934 in all of the Northeastern States. The work was performed under the Regular Cooperative, F.W.A., and E.C.W. Programs, and is summarized by programs in the following tables No. 25 to 31. Initial control was established at 8 nurseries, and the sanitation zones around 31 additional nurseries were re-examined for Ribes. A total of 78,889 wild Ribes and 206 cultivated bushes were removed from the 50,477 acres covered in connection with this nursery sanitation work.

The status of nursery sanitation work, in the various Northeastern States, as of December, 1934, is indicated in Table 30.

Summary of Nursery Sanitation Work in Northeastern States - 1934

Table 58.- Regular Cooperative Program

State	Type of Erad.	No. Nurseries Worked	Acreage Examined	Ribes Pulled		Total Man Days	Total Cost			Per Acre		
				Wild	Cult.		Indiv.	State	Total	Cost	Ribes	Man Days
N.H.	Re-Erad.	1	250	145	-	46½	-	168.00	168.00	.672	0.6	.19
Mass.	Re-Erad.	1	30	2	-	16½	-	80.25	80.25	2.68	0.07	.55
N.Y.	Re-Erad.	3	6200	3,836	-	60½	-	258.35	258.35	.042	0.6	.01
N.J.	Re-Erad.	1	10	394	-	3	-	9.60	9.60	.96	39.4	.30
Penna.	Initial	5	1682	24,958	94	45½	186.80	-	186.80	.111	14.8	.03
	Re-Erad.	3	691	3,088	-	122	-	390.80	390.80	.566	4.5	.18
	Total	8	2373	28,046	94	167½	186.80	390.80	577.60	.243	11.8	.07
Totals	Initial	5	1682	24,958	94	45½	186.80	-	186.80	.111	14.8	.03
	Re-Erad.	9	7181	7,465	-	248½	-	907.00	907.00	.126	1.0	.03
	Total	14	8863	32,423	94	294	186.80	907.00	1093.80	.123	3.7	.03

Table 59.- P.W.A. Program

State	Type of Erad.	No. nurseries Worked	Acreage Examined	Ribes Pulled		Total Man Days	Total Cost				Per Acre		
				Wild	Cult.		Indiv.	State	P.W.A.	Total	Cost	Ribes	Man Days
Maine	Re.	2	363	1,751	-	126½	-	102.33	461.25	563.58	1.55	4.8	.35
Mass.	Init.	1	41	22,802	-	54½	30.75	-	195.34	226.09	5.51	570.1	11.33
R.I.	Re.	6	2548	85	7	37½	-	6.00	150.00	156.00	.061	0.03	.01
Conn.	Init.	1	290	255	3	30	-	7.00	120.00	127.00	.438	0.9	.10
	Re.	8	2840	63	1	123	-	36.35	491.25	527.60	.186	0.02	.04
	Total	9	3130	318	4	153	-	43.35	611.25	654.60	.209	0.1	.05
N.Y.	Re.	3	3941	9232	54	730	-	962.64	1964.00	2926.64	.743	2.3	.19
Totals	Init.	2	331	23,057	3	84½	30.75	7.00	315.34	353.09	1.07	69.7	.26
	Re.	19	9692	11,131	62	1017	-	1107.32	3066.50	4173.82	.431	1.1	.10
	Total	21	10,023	34,188	65	1101½	30.75	1114.32	3381.84	4526.91	.452	3.4	.11

Basis of costs: (Regular and P.W.A. Programs)

Includes cost of laborers, straw bosses, scouts and foremen employed in locating and pulling Ribes in nursery sanitation zones - cost of crew transportation.

Table 28.- Regular Cooperative Program

State	Type of Work	No. series	Acres	Roses Polished		Total	Total Cost		Per Acre
				Wied	Colt.		Indiv. State	Total	
Maine	Re-trad.	1	250	145	-	145	-	168.00	0.67
	Re-trad.	1	30	5	-	5	-	80.25	0.07
	Re-trad.	2	6200	2,875	-	600	-	252.75	0.42
	Re-trad.	1	10	10	-	7	-	9.60	0.96
New Hampshire	Initial	2	1625	21,925	20	125	186.80	168.80	11.14
	Re-trad.	2	691	2,085	-	125	-	390.80	5.68
	Total	3	2316	24,010	20	187	186.80	559.60	24.82
	Initial	2	1625	21,925	20	125	186.80	168.80	11.14
Vermont	Re-trad.	6	115	1,355	-	245	-	907.00	7.88
	Total	10	874	32,122	20	294	186.80	907.00	10.31

Table 29.- E.W.A. Program

State	Type of Work	No. series	Acres	Roses Polished		Total	Total Cost		Per Acre
				Wied	Colt.		Indiv. State	Total	
Maine	Re-trad.	2	162	1,721	-	162	-	461.25	2.85
	Initial	1	41	22,802	-	24	-	192.34	2.21
	Re-trad.	6	2545	52	7	315	-	150.00	0.06
	Initial	1	290	225	3	30	-	120.00	0.42
New Hampshire	Re-trad.	8	2240	23	1	125	-	491.25	2.18
	Total	9	3130	218	4	153	-	611.25	2.03
	Re-trad.	7	2041	225	24	120	-	1064.00	5.19
	Initial	2	171	22,027	3	84	30.75	312.34	1.07
Vermont	Re-trad.	19	992	11,131	62	307	-	1107.25	11.17
	Total	21	10,027	34,158	65	391	30.75	1419.64	14.25

Basis of costs: (Regular and E.W.A. Programs)

Includes cost of laborers, straw bosses, scouts and foremen employed in locating and cutting roses in nursery sanitation areas - cost of crew transportation.

Table 60.- E.C.W. Program

State	Type of Erad.	No. Nurseries Worked	Acreage Examined	Ribes Pulled		Total Man Days	Cost			Per Acre		
				Wild	Cult.		State	E.C.W.	Total	Cost	Ribes	Man Days
Vt.	Re-Erad.	1	700	1,500	=	174	417.90	108.00	525.90	.751	2.1	.25
Conn.	Initial	1	280	232	47	33	=	65.28	65.28	.233	0.8	.12
	Re-Erad.	1	275	1,601	=	118½	=	196.64	196.64	.715	5.8	.43
	Total	2	555	1,833	47	151½	=	261.92	261.92	.472	3.3	.27
Penna.	Re-Erad.	1	296	8,945	=	349	=	492.20	492.20	1.66	30.2	1.18
	Initial	1	280	232	47	33	=	65.28	65.28	.233	0.8	.12
	Re-Erad.	3	1271	12,046	=	641½	417.90	796.84	1214.74	.956	9.5	.50
Totals	Total	4	1551	12,278	47	674½	417.90	862.12	1280.02	.825	7.9	.43

Table 61.- All Programs

State	Type of Erad.	No. Nurseries Worked	Acreage Examined	Ribes Pulled		Total Man Days	Cost				Per Acre			
				Wild	Cult.		Indiv.	State	P.W.A.	E.C.W.	Total	Cost	Ribes	Man Days
Maine	Re-Erad.	2	363	1,751	=	126½	=	102.33	461.25	=	563.58	1.55	4.8	.35
N.H.	Re-Erad.	1	250	145	=	46½	=	168.00	=	=	168.00	.672	0.6	.19
Vt.	Re-Erad.	1	700	1,500	=	174	=	417.90	=	108.00	525.90	.751	2.1	.25
Mass.	Initial	1	41	22,802	=	54½	30.75	=	195.34	=	226.09	5.51	570.1	1.33
	Re-Erad.	1	30	2	=	16½	=	80.25	=	=	80.25	2.68	0.07	.55
R.I.	Total	2	71	22,804	=	71	30.75	80.25	195.34	=	306.34	4.31	321.2	1.0
	Re-Erad.	6	2,548	85	7	37½	=	6.00	150.00	=	156.00	.061	0.03	.01
Conn.	Init.	2	570	487	50	63	=	7.00	120.00	65.28	192.28	.337	0.9	.11
	Re-Erad.	9	3,115	1,664	1	241½	=	36.35	491.25	196.64	724.24	.233	0.5	.08
N.Y.	Total	11	3,685	2,151	51	304½	=	43.35	611.25	261.92	916.52	.249	0.6	.08
	Re-Erad.	6	10,141	13,068	54	790½	=	1220.99	1964.00	=	3184.99	.314	1.3	.08
N.J.	Re-Erad.	1	10	394	=	3	=	9.60	=	=	9.60	.96	39.4	.30
Penna.	Init.	5	1,682	24,958	94	45½	186.80	=	=	=	186.80	.111	14.8	.03
	Re-Erad.	4	987	12,033	=	471	=	390.80	=	492.20	883.00	.895	12.2	.48
Totals	Total	9	2,669	36,991	94	516½	186.80	390.80	=	492.20	1069.80	.401	13.2	.19
	Init.	8	2,293	48,247	144	163	217.55	7.00	315.34	65.28	605.17	.264	21.0	.07
Totals	Re-Erad.	31	18,144	30,642	62	1907	=	2432.22	3066.50	796.84	6295.56	.347	1.7	.11
	Total	39	20,437	78,889	206	2070	217.55	2439.22	3381.84	862.12	6900.73	.338	3.9	.10

Basis of costs: (E.C.W. Program)

Includes estimated cost of enlisted E.C.W. personnel's total time (including lunch hour and travel) while engaged in locating and pulling Ribes in nursery sanitation zones figured at rate of \$1.40 per eight hour day - cost of transportation. State expenditure in Vermont was for additional labor and foreman. See Page 60 for basis of costs for work under Regular and P.W.A. Programs.

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THE UNIVERSITY OF CHICAGO

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Table 62.- Summary of Nursery Sanitation Work Under Regular Cooperative Program
In Northeastern States 1930 - 1934, Inclusive

By Years

Year	Type of Erad.	Acreage Examined	Ribes Pulled		Cost				Per Acre	
			Wild	Cult.	Indiv.	Towns	State	Govt.	Total	Cost Ribes
1930	Initial	4,973	110,704	182	528.77	-	905.19	-	1,433.96	.288
	Re-Erad.	20,752	59,542	643	568.89	-	4,198.33	-	4,767.22	.230
	Total	25,725	170,246	825	1097.66	-	5,103.52	-	6,201.18	.241
1931	Initial	3,048	6,117	55	5.60	-	240.36	139.92	385.88	.127
	Re-Erad.	26,776	26,126	1086	117.69	-	4,863.42	372.50	5,353.61	.200
	Total	29,824	32,243	1141	123.29	-	5,103.78	512.42	5,739.49	.192
1932	Initial	5,159	16,478	1222	50.65	-	1,588.32	172.87	1,811.84	.351
	Re-Erad.	12,903	12,543	60	155.51	7.73	3,828.15	5.33	3,996.72	.313
	Total	18,062	29,021	1282	206.16	7.73	5,416.47	178.20	5,808.56	.324
1933	Initial	1,490	19,102	32	59.40	-	196.95	36.80	293.15	.197
	Re-Erad.	18,735	33,280	368	183.50	148.45	4,608.74	255.54	5,196.23	.277
	Total	20,225	52,382	400	242.90	148.45	4,805.69	292.34	5,489.38	.271
1934	Initial	1,682	24,958	94	186.80	-	-	-	186.80	.111
	Re-Erad.	7,181	7,465	-	-	-	907.00	-	907.00	.126
	Total	8,863	32,423	94	186.80	-	907.00	-	1,093.80	.123
Totals	Initial	16,352	177,359	1585	831.22	-	2,930.82	349.59	4,111.63	.251
	Re-Erad.	86,347	138,956	2157	1025.59	156.18	18,405.64	633.37	20,220.78	.234
	Total	102,699	316,315	3742	1856.81	156.18	21,336.46	982.96	24,332.41	.237

Basis of costs:

Includes cost of laborers, straw bosses, scouts, and foremen while engaged in locating and pulling Ribes in nursery sanitation zones (laborers furnished by owners usually charged at rate of 40¢ per hour) - cost of crew transportation.

Table 63. Summary of Nursery Sanitation Work Under Regular Cooperative Program
In Northeastern States 1930 - 1934 Inclusive

By States

States	Type of Erad.	Acreage Examined	Ribes Pulled		Cost				Per Acre	
			Wild	Cult.	Indiv.	Towns	State	Govt.	Total	Ribes
Maine	Initial	206	103,516	22	324.45	-	198.20	-	522.65	2.54 502.5
	Re-Erad.	272	8,873	-	-	156.18	82.27	-	238.45	.877 32.6
	Total	478	112,389	22	324.45	156.18	280.47	-	761.10	1.59 235.1
N. H.	Initial	-	-	-	-	-	-	-	-	-
	Re-Erad.	1327	7,647	-	172.28	-	308.71	-	480.99	.362 5.8
	Total	1327	7,647	-	172.28	-	308.71	-	480.99	.362 5.8
Vt.	Initial	-	-	-	-	-	-	-	-	-
	Re-Erad.	450	1,540	-	-	-	303.54	-	303.54	.675 3.4
	Total	450	1,540	-	-	-	303.54	-	303.54	.675 3.4
Mass.	Initial	682	7,567	112	110.05	-	212.79	10.00	332.84	.488 11.1
	Re-Erad.	3469	2,831	179	89.20	-	2,183.86	-	2,273.06	.655 0.8
	Total	4151	10,398	291	199.25	-	2,396.65	10.00	2,605.90	.628 2.5
R. I.	Initial	1190	133	520	-	-	343.56	162.87	506.43	.426 0.1
	Re-Erad.	2020	4,440	107	-	-	445.06	-	445.06	.220 2.2
	Total	3210	4,573	627	-	-	788.62	162.87	951.49	.297 1.4
Conn.	Initial	6587	5,352	102	204.32	-	345.69	139.92	689.93	.105 0.8
	Re-Erad.	32,353	5,544	837	557.04	-	2,483.33	610.87	3,651.24	.113 0.2
	Total	38,940	10,896	939	761.36	-	2,829.02	750.79	4,341.17	.112 0.3
N. Y.	Initial	3,110	26,017	634	5.60	-	1,219.95	-	1,225.55	.394 8.4
	Re-Erad.	42,962	85,095	1034	207.07	-	11,120.76	-	11,327.83	.264 2.0
	Total	46,072	112,112	1668	212.67	-	12,340.71	-	12,553.38	.272 2.4
N. J.	Initial	1,000	462	49	-	-	22.20	-	22.20	.022 0.5
	Re-Erad.	1,010	569	-	-	-	31.47	22.50	53.97	.053 0.6
	Total	2,010	1,031	49	-	-	53.67	22.50	76.17	.038 0.5
Penna.	Initial	3,577	34,312	146	186.80	-	588.43	36.80	812.03	.227 9.6
	Re-Erad.	2,484	21,417	-	-	-	1,446.64	-	1,446.64	.582 8.6
	Total	6,061	55,729	146	186.80	-	2,035.07	36.80	2,258.67	.373 9.2
Totals	Initial	16,352	177,359	1585	831.22	-	2,930.52	349.59	4,111.63	.251 10.8
	Re-Erad.	86,347	138,956	2157	1025.59	156.18	18,405.64	633.37	20,220.78	.234 1.6
	Total	102,699	316,315	3742	1856.81	156.18	21,336.46	982.96	24,332.41	.237 3.1

Basis of costs: See Page 62.

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Table 64.- Summary of Nursery Sanitation Work Under E.C.W. Program
In Northeastern States - 1933 and 1934 Inclusive

By Years

Year	Type of Erad.	Acreage Examined	Ribes Pulled		Man Days	Cost			Per Acre		
			Wild	Cult.		State	E.C.W.	Total	Cost	Ribes	Man Days
1933	Re-Erad.	327	3,363	-	416	-	709.40	709.40	2.17	10.3	1.27
1934	Initial	280	232	47	33	-	65.28	65.28	.233	0.8	.12
	Re-Erad.	1271	12,046	-	641½	417.90	796.84	1214.74	.956	9.5	.50
	Total	1551	12,278	47	674½	417.90	862.12	1280.02	.825	7.9	.43
Totals	Initial	280	232	47	33	-	65.28	65.28	.233	0.8	.12
	Re-Erad.	1598	15,409	-	1057½	417.90	1506.24	1924.14	1.20	9.6	.66
	Total	1878	15,641	47	1090½	417.90	1571.52	1989.42	1.06	8.3	.58

By States

States	Type of Erad.	Acreage Examined	Ribes Pulled		Total Man Days	Cost			Per Acre		
			Wild	Cult.		State	E.C.W.	Total	Cost	Ribes	Man Days
Vt.	Re-Erad.	700	1,500	-	174	417.90	108.00	525.90	.751	2.1	.25
Conn.	Initial	280	232	47	33	-	65.28	65.28	.233	0.8	.12
	Re-Erad.	512	2,291	-	410½	-	716.09	716.09	1.40	4.5	.80
	Total	792	2,523	47	443½	-	781.37	781.37	.987	3.2	.56
Penna.	Re-Erad.	386	11,618	-	473	-	682.15	682.15	1.76	30.1	1.23
Totals	Initial	280	232	47	33	-	65.28	65.28	.233	0.8	.12
	Re-Erad.	1598	15,409	-	1057½	417.90	1506.24	1924.14	1.20	9.6	.66
	Total	1878	15,641	47	1090½	417.90	1571.52	1989.42	1.06	8.3	.58

Basis of costs:

Includes estimated cost of enlisted personnel's total time (including lunch hour and travel) while engaged in locating and pulling Ribes in nursery sanitation zones, figured at rate of \$1.35 per eight hour day in 1933 and \$1.40 in 1934 - cost of transportation. State expenditures in Vermont were for additional laborers and foreman.

Table 64. - Summary of Nursery Statistics for Order V.C.W. Program in Northeastern States - 1971 and 1972 inclusive

By Year

Year	Type of Seedling	Acres	Rises Filled		Man Days	Cost			Per Acre
			Wild	Cult.		State	F.C.W.	Total	
1971	Re-Seed	100	1,800	-	174	417.90	108.00	525.90	5.26
	Initial	280	232	47	33	-	62.28	62.28	0.8
1972	Re-Seed	412	2,291	-	410	418.09	118.09	536.18	1.40
	Initial	792	2,227	47	443	-	181.37	181.37	3.2
1973	Re-Seed	482	11,818	-	473	-	682.12	682.12	1.40
	Initial	280	232	47	33	-	62.28	62.28	0.8
1974	Re-Seed	1,598	12,109	-	1,027	417.90	1,506.24	1,924.14	1.20
	Initial	1,218	12,541	47	1,004	417.90	1,211.22	1,629.12	1.33

By State

Year	Type of Seedling	Acres	Rises Filled		Man Days	Cost			Per Acre
			Wild	Cult.		State	F.C.W.	Total	
1971	Re-Seed	100	1,800	-	174	417.90	108.00	525.90	5.26
	Initial	280	232	47	33	-	62.28	62.28	0.8
1972	Re-Seed	412	2,291	-	410	418.09	118.09	536.18	1.40
	Initial	792	2,227	47	443	-	181.37	181.37	3.2
1973	Re-Seed	482	11,818	-	473	-	682.12	682.12	1.40
	Initial	280	232	47	33	-	62.28	62.28	0.8
1974	Re-Seed	1,598	12,109	-	1,027	417.90	1,506.24	1,924.14	1.20
	Initial	1,218	12,541	47	1,004	417.90	1,211.22	1,629.12	1.33

Basic of costs:

Includes estimated cost of enlisted personnel's total time (including travel and travel) while engaged in locating and pulling rises in nursery seedling forest. Based on rate of \$1.15 per work hour day in 1971 and \$1.40 in 1972 - cost of transportation. State expenditures in Vermont were for additional laborers and foremen.

Table 65.- Summary of Nursery Sanitation Work Under P.W.A. Program
In Northeastern States - 1933 and 1934 Inclusive

By Years

Year	Type of Erad.	Acreage Examined	Ribes Pulled		Total Man Days	Cost				Per Acre		
			Wild	Cult.		Indiv.	State	P.W.A.	Total	Cost	Ribes	Man Days
1933	Initial	84	2,540	-	63½	-	-	264.55	264.55	3.15	30.2	.76
	Re-Erad.	-	-	-	-	-	-	-	-	-	-	-
	Total	84	2,540	-	63½	-	-	264.55	264.55	3.15	30.2	.76
1934	Initial	331	23,057	3	84½	30.75	7.00	315.34	353.09	1.07	69.7	.26
	Re-Erad.	9,692	11,131	62	1017	-	1107.32	3066.50	4173.82	.431	1.1	.10
	Total	10,023	34,188	65	1101½	30.75	1114.32	3381.84	4526.91	.452	3.4	.11
Totals	Initial	415	25,597	3	148	30.75	7.00	579.89	617.64	1.49	61.7	.36
	Re-Erad.	9,692	11,131	62	1017	-	1107.32	3066.50	4173.82	.431	1.1	.10
	Total	10,107	36,728	65	1165	30.75	1114.32	3646.39	4791.46	.474	3.6	.12

By States

States	Type of Erad.	Acreage Examined	Ribes Pulled		Total Man Days	Cost				Per Acre		
			Wild	Cult.		Indiv.	State	P.W.A.	Total	Cost	Ribes	Man Days
Maine	Re-Erad.	363	1,751	-	126½	-	102.33	461.25	563.58	1.55	4.8	.35
Mass.	Initial	41	22,802	-	54½	30.75	-	195.34	226.09	5.51	570.1	1.33
R. I.	Re-Erad.	2548	85	7	37½	-	6.00	150.00	156.00	.061	0.03	.01
Conn.	Initial	290	255	3	30	-	7.00	120.00	127.00	.438	0.9	.10
	Re-Erad.	2840	63	1	123	-	36.35	491.25	527.60	.186	0.02	.04
	Total	3130	318	4	153	-	43.35	611.25	654.60	.209	0.1	.05
N. Y.	Re-Erad.	3941	9,232	54	730	-	962.64	1964.00	2926.64	.743	2.3	.19
Penna.	Initial	84	2,540	-	63½	-	-	264.55	264.55	3.15	30.2	.76
Totals	Initial	415	25,597	3	148	30.75	7.00	579.89	617.64	1.49	61.7	.36
	Re-Erad.	9692	11,131	62	1017	-	1107.32	3066.50	4173.82	.431	1.1	.10
	Total	10,107	36,728	65	1165	30.75	1114.32	3646.39	4791.46	.474	3.6	.12

Basis of costs:

Includes cost of laborers, straw bosses, scouts, and foremen while engaged in locating and pulling Ribes in nursery sanitation zones - cost of transportation.

Table 66.- Summary of Nursery Sanitation Work Under All Programs
In Northeastern States 1930 - 1934 Inclusive

Year	Type of Erad.	Acreage Examined	Ribes Pulled		Cost						Govt.			Per Acre	
			Wild	Cult.	Indiv.	Towns	State	B.F.I.	P.W.A.	E.C.W.	Total	Cost	Ribes		
1930	Initial	4,973	110,704	182	528.77	-	905.19	-	-	-	-	1,433.96	.288	22.3	
	Re-Erad.	20,752	59,542	643	568.89	-	4,198.33	-	-	-	-	4,767.22	.230	2.9	
	Total	25,725	170,246	825	1097.66	-	5,103.52	-	-	-	-	6,201.18	.241	6.6	
1931	Initial	3,048	6,117	55	5.60	-	240.36	139.92	-	-	-	385.88	.127	2.0	
	Re-Erad.	26,776	26,126	1086	117.69	-	4,863.42	372.50	-	-	-	5,353.61	.200	1.0	
	Total	29,824	32,243	1141	123.29	-	5,103.78	512.42	-	-	-	5,739.49	.192	1.1	
1932	Initial	5,159	16,478	1222	50.65	-	1,588.32	172.87	-	-	-	1,811.84	.351	3.2	
	Re-Erad.	12,903	12,543	60	155.51	7.73	3,828.15	5.33	-	-	-	3,996.72	.313	1.0	
	Total	18,062	29,021	1282	206.16	7.73	5,416.47	178.20	-	-	-	5,808.56	.324	1.6	
1933	Initial	1,574	21,642	32	59.40	-	196.95	36.80	264.55	-	-	557.70	.354	13.7	
	Re-Erad.	19,062	36,643	368	183.50	148.45	4,608.74	255.54	-	709.40	-	5,905.63	.310	1.9	
	Total	20,636	58,285	400	242.90	148.45	4,805.69	292.34	264.55	709.40	-	6,463.33	.313	2.8	
1934	Initial	2,293	48,247	144	217.55	-	7.00	-	315.34	65.28	-	605.17	.264	21.0	
	Re-Erad.	18,144	30,642	62	-	-	2,432.22	-	3066.50	796.84	-	6,295.56	.347	1.7	
	Total	20,437	78,889	206	217.55	-	2,439.22	-	3381.84	862.12	-	6,900.73	.338	3.9	
Totals	Initial	17,047	203,188	1635	861.97	-	2,937.82	349.59	579.89	65.28	-	4,794.55	.281	11.9	
	Re-Erad.	97,637	165,496	2219	1025.59	156.18	19,930.86	633.37	3066.50	1506.24	-	26,318.74	.270	1.7	
	Total	114,684	368,684	3854	1887.56	156.18	22,868.68	982.96	3646.39	1571.52	-	31,113.29	.271	3.2	

Basis of costs:

See Page 62 for work conducted under Regular Cooperative Program, Page 64 for E.C.W. work, and Page 65 for P.W.A. work.

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Table 67.- Summary of Nursery Sanitation Work Under All Programs
In Northeastern States 1930 - 1934 Inclusive

By States

States	Type of Erad.	Acreage Examined	Ribes Pulled		Indiv.	Towns	State	Cost			Total	Per Acre	
			Wild	Cult.				B.P.I.	P.W.A.	E.C.W.		Cost	Ribes
Maine	Initial	206	103,516	22	324.45	-	198.20	-	-	-	522.65	2.54	502.5
	Re-Erad.	635	10,624	-	-	156.18	184.60	-	461.25	-	802.63	1.26	16.7
	Total	841	114,140	22	324.45	156.18	382.80	-	461.25	-	1,324.68	1.58	135.7
N. H.	Initial	-	-	-	-	-	-	-	-	-	-	-	-
	Re-Erad.	1,327	7,647	-	172.28	-	308.71	-	-	-	480.99	.362	5.8
	Total	1,327	7,647	-	172.28	-	308.71	-	-	-	480.99	.362	5.8
Vt.	Initial	-	-	-	-	-	-	-	-	-	-	-	-
	Re-Erad.	1,150	3,040	-	-	-	721.44	-	-	108.00	829.44	.721	2.6
	Total	1,150	3,040	-	-	-	721.44	-	-	108.00	829.44	.721	2.6
Mass.	Initial	723	30,369	112	140.80	-	212.79	10.00	195.34	-	558.93	.773	42.0
	Re-Erad.	3,469	2,831	179	89.20	-	2,183.86	-	-	-	2,273.06	.655	0.8
	Total	4,192	33,200	291	230.00	-	2,396.65	10.00	195.34	-	2,831.99	.676	7.9
R. I.	Initial	1,190	133	520	-	-	343.56	162.87	-	-	506.43	.426	0.1
	Re-Erad.	4,568	4,525	114	-	-	451.06	-	150.00	-	601.06	.132	1.0
	Total	5,758	4,658	634	-	-	794.62	162.87	150.00	-	1,107.49	.192	0.8
Conn.	Initial	7,157	5,839	152	204.32	-	352.69	139.92	120.00	65.28	882.21	.123	0.8
	Re-Erad.	35,705	7,898	838	557.04	-	2,519.68	610.87	491.25	716.09	4,894.93	.137	0.2
	Total	42,862	13,737	990	761.36	-	2,872.37	750.79	611.25	781.37	5,777.14	.135	0.3
N. Y.	Initial	3,110	26,017	634	5.60	-	1,219.95	-	-	-	1,225.55	.394	8.4
	Re-Erad.	46,903	95,327	1088	207.07	-	12,083.40	-	1964.00	-	14,254.47	.304	2.0
	Total	50,013	121,344	1722	212.67	-	13,303.35	-	1964.00	-	15,480.02	.310	2.4
N. J.	Initial	1,000	462	49	-	-	22.20	-	-	-	22.20	.022	0.5
	Re-Erad.	1,010	569	-	-	-	31.47	22.50	-	-	53.97	.053	0.6
	Total	2,010	1,031	49	-	-	53.67	22.50	-	-	76.17	.038	0.5
Penna.	Initial	3,661	36,852	146	186.80	-	588.43	36.80	264.55	-	1,076.58	.294	10.1
	Re-Erad.	2,870	33,035	-	-	-	1,446.64	-	-	682.15	2,128.79	.742	11.6
	Total	6,531	69,887	146	186.80	-	2,035.07	36.80	264.55	682.15	3,205.37	.491	10.7
Totals	Initial	17,047	203,188	1635	861.97	-	2,937.82	349.59	579.89	65.28	4,794.55	.281	11.9
	Re-Erad.	97,637	165,496	2219	1025.59	156.18	19,930.86	633.37	3066.50	1506.24	26,318.74	.270	1.7
	Total	114,684	368,684	3854	1887.56	156.18	22,868.68	982.96	3646.39	1571.52	31,113.29	.271	3.2

Basis of costs:

See Page 62 for work conducted under Regular Cooperative Program,
Page 64 for E.C.W. work, and Page 65 for P.W.A. work.

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Page 67 of 80 H.C.W. 1907
 Page 68 of 80 H.C.W. 1907

As previously mentioned, no separate record was kept of the nursery sanitation work prior to 1930. Such control work was included in the regular Ribes eradication summaries. However, an incomplete summary was secured from the state leaders (bases on available data and including estimates in several instances) for the period 1925 - 1929.

Table 68- Summary of All Nursery Sanitation Work in Northeastern States
1925 - 1929

State	Type of Erad.	Acreage Examined	Ribes Pulled		Cost					Per Acre	
			Wild	Cult.	Indiv.	Towns	State	Govt.	Total	Cost	Ribes
Maine	Initial	415	91,569	-	617.10	-	-	-	617.10	1.49	220.6
	Re-Erad.	400	1,343	-	74.20	10.80	-	-	85.00	.213	3.4
	Total	815	92,912	-	691.30	10.80	-	-	702.10	.861	114.0
N. H.	Initial	115	29	-	-	-	16.56	-	16.56	.144	0.3
	Re-Erad.	805	3,351	45	245.65	-	161.97	-	407.62	.506	4.2
	Total	920	3,380	45	245.65	-	178.53	-	424.18	.461	3.7
Vt.	Initial	-	-	-	-	-	-	-	-	-	-
	Re-Erad.	700	5	-	-	-	479.64	-	479.64	.685	.001
	Total	700	5	-	-	-	479.64	-	479.64	.685	.001
Mass.	Initial	10,825	5,641	4,488	-	-	7,759.85	-	7,759.85	.717	0.5
	Re-Erad.	4,625	21	648	-	-	918.90	-	918.90	.199	.004
	Total	15,450	5,662	5,136	-	-	8,678.75	-	8,678.75	.562	0.4
Conn.	Initial	5,342	159	1,836	242.75	-	769.71	-	1,012.46	.190	.03
	Re-Erad.	5,580	1,083	1,431	72.00	-	547.90	75.00	694.90	.125	0.2
	Total	10,922	1,242	3,267	314.75	-	1,317.61	75.00	1,707.36	.156	0.1
N. Y.	Initial	8,762	41,795	-	-	-	1,939.94	-	1,939.94	.221	4.8
	Re-Erad.	9,020	97,047	294	-	-	4,795.28	-	4,795.28	.532	10.8
	Total	17,782	138,842	294	-	-	6,735.22	-	6,735.22	.379	7.8
Totals	Initial	25,459	139,193	6,324	859.85	-	10,486.06	-	11,345.91	.446	5.5
	Re-Erad.	21,130	102,850	2,418	391.85	10.80	6,903.69	75.00	7,381.34	.349	4.9
	Total	46,589	242,043	8,742	1,251.70	10.80	17,389.75	75.00	18,727.25	.402	5.2

No nursery sanitation work performed in Northeastern States not listed above.

Basis of costs: See Page 62.

As previously mentioned, no separate review was made of the nursery evaluation work done in 1957. Such control work was included in the regular field evaluation summaries. However, an incomplete summary was received from the state leaders (based on available data and including estimates in several instances) for the period 1957-1959.

Table 2. Summary of All Nursery Evaluation Work in Northeastern States 1957-1959

Type of Trial	Increase Estimated	Roses Tested		Roses Killed		Total		Cost		Total	Per Acre
		Initial	Re-Exam.	Initial	Re-Exam.	Initial	Re-Exam.	Initial	Re-Exam.		
Initial	418	418	418	418	418	418	418	418	418	418	418
Re-Exam.	400	400	400	400	400	400	400	400	400	400	400
Total	818	818	818	818	818	818	818	818	818	818	818
Initial	112	112	112	112	112	112	112	112	112	112	112
Re-Exam.	208	208	208	208	208	208	208	208	208	208	208
Total	320	320	320	320	320	320	320	320	320	320	320
Initial	100	100	100	100	100	100	100	100	100	100	100
Re-Exam.	100	100	100	100	100	100	100	100	100	100	100
Total	200	200	200	200	200	200	200	200	200	200	200
Initial	10,858	10,858	10,858	10,858	10,858	10,858	10,858	10,858	10,858	10,858	10,858
Re-Exam.	7,528	7,528	7,528	7,528	7,528	7,528	7,528	7,528	7,528	7,528	7,528
Total	18,386	18,386	18,386	18,386	18,386	18,386	18,386	18,386	18,386	18,386	18,386
Initial	5,748	5,748	5,748	5,748	5,748	5,748	5,748	5,748	5,748	5,748	5,748
Re-Exam.	2,520	2,520	2,520	2,520	2,520	2,520	2,520	2,520	2,520	2,520	2,520
Total	10,268	10,268	10,268	10,268	10,268	10,268	10,268	10,268	10,268	10,268	10,268
Initial	8,728	8,728	8,728	8,728	8,728	8,728	8,728	8,728	8,728	8,728	8,728
Re-Exam.	9,050	9,050	9,050	9,050	9,050	9,050	9,050	9,050	9,050	9,050	9,050
Total	17,778	17,778	17,778	17,778	17,778	17,778	17,778	17,778	17,778	17,778	17,778
Initial	25,480	25,480	25,480	25,480	25,480	25,480	25,480	25,480	25,480	25,480	25,480
Re-Exam.	21,130	21,130	21,130	21,130	21,130	21,130	21,130	21,130	21,130	21,130	21,130
Total	46,610	46,610	46,610	46,610	46,610	46,610	46,610	46,610	46,610	46,610	46,610

No nursery evaluation work performed in Northeastern States not listed above.

Basis of costs: See page 22.

Table 69.- Summary of All Nursery Sanitation Work in Northeastern States
1925 - 1934 Inclusive

State	Type of Erad.	Acreage Examined	Ribes Pulled		Indiv.	Towns	State	Cost		P.W.A.	E.C.W.	Total	Per Acre	
			Wild	Cult.				B.P.I.	Cost				Ribes	
Maine	Initial	621	195,085	22	941.55	-	198.20	-	-	-	-	1,139.75	1.84	314.1
	Re-Erad.	1,035	11,967	-	74.20	166.98	184.60	-	-	461.25	-	887.03	.857	11.6
	Total	1,656	207,052	22	1,015.75	166.98	382.80	-	-	461.25	-	2,026.78	1.22	125.0
N. H.	Initial	115	29	-	-	-	16.56	-	-	-	-	16.56	.144	.25
	Re-Erad.	2,132	10,998	45	417.93	-	470.68	-	-	-	-	888.61	.417	5.2
	Total	2,247	11,027	45	417.93	-	487.24	-	-	-	-	905.17	.403	4.9
Vt.	Initial	-	-	-	-	-	-	-	-	-	-	-	-	-
	Re-Erad.	1,850	3,045	-	-	-	1,201.08	-	-	-	108.00	1,309.08	.708	1.6
	Total	1,850	3,045	-	-	-	1,201.08	-	-	-	108.00	1,309.08	.708	1.6
Mass.	Initial	11,548	36,010	4600	140.80	-	7,972.64	10.00	195.34	-	-	8,318.78	.720	3.1
	Re-Erad.	8,094	2,852	827	89.20	-	3,102.76	-	-	-	-	3,191.96	.394	.35
	Total	19,642	38,862	5427	230.00	-	11,075.40	10.00	195.34	-	-	11,510.74	.586	2.0
R. I.	Initial	1,190	133	520	-	-	343.56	162.87	-	-	-	506.43	.426	.11
	Re-Erad.	4,568	4,525	114	-	-	451.06	-	150.00	-	-	601.06	.132	1.0
	Total	5,758	4,658	634	-	-	794.62	162.87	150.00	-	-	1,107.49	.192	.81
Conn.	Initial	12,499	5,998	1988	447.07	-	1,122.40	139.92	120.00	65.28	-	1,894.67	.152	.48
	Re-Erad.	41,285	8,981	2269	629.04	-	3,067.58	685.87	491.25	716.09	-	5,589.83	.135	.22
	Total	53,784	14,979	4257	1,076.11	-	4,189.98	825.79	611.25	781.37	-	7,484.50	.139	.28
N. Y.	Initial	11,872	67,812	634	5.60	-	3,159.89	-	-	-	-	3,165.49	.267	5.7
	Re-Erad.	55,923	192,374	1382	207.07	-	16,878.68	-	1,964.00	-	-	19,049.75	.341	3.4
	Total	67,795	260,186	2016	212.67	-	20,038.57	-	1,964.00	-	-	22,215.24	.328	3.8
N. J.	Initial	1,000	462	49	-	-	22.20	-	-	-	-	22.20	.022	.46
	Re-Erad.	1,010	569	-	-	-	31.47	22.50	-	-	-	53.97	.053	.56
	Total	2,010	1,031	49	-	-	53.67	22.50	-	-	-	76.17	.038	.51
Penna.	Initial	3,661	36,852	146	186.80	-	588.43	36.80	264.55	-	-	1,076.58	.294	10.1
	Re-Erad.	2,870	33,035	-	-	-	1,446.64	-	-	682.15	-	2,128.79	.742	11.5
	Total	6,531	69,887	146	186.80	-	2,035.07	36.80	264.55	682.15	-	3,205.37	.491	10.7
Totals	Initial	42,506	342,381	7959	1721.82	-	13,423.88	349.59	579.89	65.28	-	16,140.46	.380	8.1
	Re-Erad.	118,767	268,346	4637	1417.44	166.98	26,834.55	708.37	13,066.50	1506.24	-	33,700.08	.284	2.3
	Total	161,273	610,727	12,596	3139.26	166.98	40,258.43	1057.96	13,646.39	1571.52	-	49,840.54	.309	3.8

Basis of costs:

See Page 62 for work conducted under Regular Cooperative Program, Page 64 for E.C.W. work, and Page 65 for P.W.A. work.

Proctor page 67 to E.C.W. Nov. 28 to P.M.V. Nov.
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Table 70 - Status of Nursery Sanitation Work - December 1934

State	No. Nurseries Growing White Pine				No. Nurseries Protected from Blister Rust			
	Reforestation Stock Only	Ornamental Stock Only	Both	Total	Reforestation Stock Only	Ornamental Stock Only	Both	Total
Me.	2	3	5	10	2	1	3(a)	6
N.H.	1	2	2	5	1	2	2	5
Vt.	1	2	-	3	1	-	-	1
Mass.	6	15	4	25	6	12	3	21
R.I.	-	11	-	11	-	6	-	6
Conn.	1	8	6	15	1	4(b)	6	11
N.Y.	7	262	1	270	7	-	1	8
N.E. & N.Y.	18	303	18	339	18	25	15	58
N.J.	1	86	-	87	1	-	-	1
Pa.	4	100 est.	-	104	4	6	-	10
Total	23	489	18	530	23	31	15	69

(a) The two unprotected private nurseries growing white pine for both reforestation and ornamental purposes are no longer of importance from a control viewpoint. The one at Skowhegan, Me. has gone out of business and the planting stock is too large for reforestation; while the other, located at Cupsuptic and owned by the Brown Company is discontinuing the growing of white pine. The existing stock in this latter nursery will be planted locally on lands owned by the company.

(b) Three additional nurseries established sanitation zones, but abandoned them.

The number of private nurseries in Connecticut includes only those having 500 or more white pines, while in Massachusetts only the larger commercial white pine growing nurseries are listed. In the other states, the number includes all nurseries growing white pines regardless of the amount of such stock. In Rhode Island there are only 3 private nurseries with more than 500 white pines; 6 of the other nurseries in this state and the two in Vermont each contain less than 100 white pines. Only 28 private nurseries in New Jersey have over 500 such trees. The 263 private pine growing nurseries in New York contained 364,544 white pines in 1932. Of this total number of trees, 207,700 were located in three nurseries (Hicks, VonKleaf, and United Forestry Company). Only 58 of the private nurseries in this state were growing 500 or more white pines and only 10 had 5,000 or more of this species.

Table 10 - Status of Nursery Sanitation Work - December 1934

State	No. Nurseries Growing White Pine			No. Nurseries Protected from Elusive Rust		
	Stock Only	Stock Only	Total	Stock Only	Stock Only	Total
Al.	33	489	522	24	31	55
Ar.	4	100 est.	104	4	2	6
Cal.	1	88	89	1	-	1
Col.	18	303	321	18	22	40
Conn.	1	262	263	7	-	7
Del.	1	8	9	1	4(b)	5
Fla.	-	11	11	-	8	8
Ga.	6	12	18	6	12	18
Id.	1	2	3	1	-	1
Ill.	1	2	3	1	2	3
Ind.	2	3	5	2	1	3
Iowa	2	10	12	2	1	3
Kent.	2	3	5	2	1	3
La.	1	2	3	1	1	2
Me.	1	2	3	1	1	2
Mich.	1	2	3	1	1	2
Minn.	1	2	3	1	1	2
Miss.	1	2	3	1	1	2
Mo.	1	2	3	1	1	2
Mont.	1	2	3	1	1	2
Nebr.	1	2	3	1	1	2
Nev.	1	2	3	1	1	2
N.H.	1	2	3	1	1	2
N.J.	1	2	3	1	1	2
N.M.	1	2	3	1	1	2
N.Y.	1	2	3	1	1	2
N.C.	1	2	3	1	1	2
Ohio	1	2	3	1	1	2
Ore.	1	2	3	1	1	2
Penn.	1	2	3	1	1	2
R.I.	1	2	3	1	1	2
S.D.	1	2	3	1	1	2
Tenn.	1	2	3	1	1	2
Texas	1	2	3	1	1	2
Verm.	1	2	3	1	1	2
Wash.	1	2	3	1	1	2
W. Va.	1	2	3	1	1	2
Wis.	1	2	3	1	1	2
Wyo.	1	2	3	1	1	2

(a) The two unprotected private nurseries growing white pine for both reforestation and ornamental purposes are no longer of importance from a control viewpoint. The one at Skowhegan, Me. has gone out of business and the planting stock is too large for reforestation; while the other, located at Canby, Me. and owned by the Brown Company is discontinuing the growing of white pine. The existing stock in this latter nursery will be planted locally on lands owned by the company.

(b) Three additional nurseries established sanitation zones, but abandoned them.

The number of private nurseries in Connecticut includes only those having 500 or more white pines; while in Massachusetts only the larger commercial white pine growing nurseries are listed. In the other states, the number includes all nurseries growing white pine regardless of the amount of such stock. In Rhode Island there are only 2 private nurseries with more than 500 white pines; 6 of the other nurseries in this state and the two in Vermont each contain less than 100 white pines. Only 22 private nurseries in New Jersey have over 500 white pines. The 267 private pine growing nurseries in New York contained 354,544 white pines in 1932. Of this total number of trees, 207,700 were located in three nurseries (Wicks, VonKleist, and United Forestry Company). Only 58 of the private nurseries in this state were growing 500 or more white pines and only 10 had 5,000 or more of this species.

BLACK CURRANT ELIMINATION

The cooperating states are eliminating *Ribes nigrum* as rapidly as practicable. During the past few years, such work has been conducted as a special project in Massachusetts, Rhode Island, Connecticut and New York (all of these states, except Massachusetts, have definite state laws which prohibit the possession of *Ribes nigrum*). In the other Northeastern States, the black currants are destroyed in conjunction with the regular *Ribes* eradication work. It will, however, be necessary in these states to make special arrangements for eliminating *Ribes nigrum* outside the control areas.

During 1934, black currant elimination was performed as a special project in Massachusetts, Connecticut and New York. Such activities in Massachusetts were conducted under the Regular Cooperative, P.W.A., and C.W.A. Programs; in Connecticut under the C.W.A., E.R.A., and C.P.A. Programs; and under the Regular and P.W.A. Programs in New York. This work was performed in a total of 152 towns, and completed in 94 of them. A total of 12,083 *Ribes nigrum* and 22,503 other cultivated bushes were destroyed in connection with these projects at a total cost of \$39,127.59.

During the period December 4, 1933 to March 22, 1934, a C.W.A. cultivated *Ribes* survey was conducted in Connecticut to locate all *Ribes nigrum* and any other cultivated *Ribes* within 900 feet of white pine areas worth the cost of protection. This project was continued during the remainder of the year under the E.R.A. & C.P.A. Programs with an average of 91 men being employed. The bushes located in 36 towns, in connection with the C.W.A. work during the winter months, were eradicated by the E.R.A. crews, and the work was extended into 67 other towns. This cultivated *Ribes* eradication project in Connecticut was continued during the winter months of 1935. It is expected that such activities will be completed in most of the state before the end of the year.

In Massachusetts, the black currants were merely located in connection with the C.W.A. project conducted in 17 towns during the winter and early spring months. Such bushes in Massachusetts were eradicated by the owners themselves, or pulled by P.W.A. personnel during the summer months.

The following tables show the results of the special black currant elimination projects during 1934, and also summarize all such activities to date.

BLACK CURRENT ELIMINATION

The cooperating states are eliminating Ribes nigra as rapidly as possible. During the past few years, such work has been conducted as a special project in Massachusetts, Rhode Island, Connecticut and New York (all of these states, except Massachusetts, have definite state laws which prohibit the possession of Ribes nigra). In the other Northeastern States, the black currants are destroyed in connection with the regular Ribes eradication work. It will, however, be necessary in these states to make special arrangements for eliminating Ribes nigra outside the control areas.

During 1934, black current elimination was performed as a special project in Massachusetts, Connecticut and New York. Such activities in Massachusetts were conducted under the Regular Cooperative, P.W.A., and C.W.A. Programs; in Connecticut under the C.W.A., P.W.A., and C.P.A. Programs; and under the Regular and P.W.A. Programs in New York. This work was performed in a total of 152 towns, and completed in 94 of them. A total of 12,083 Ribes nigra and 22,507 other cultivated bushes were destroyed in connection with these projects at a total cost of \$39,151.59.

During the period December 1, 1933 to March 22, 1934, a C.W.A. cultivated Ribes survey was conducted in Connecticut to locate all Ribes nigra and any other cultivated Ribes within 900 feet of white pine areas worth the cost of protection. This project was continued during the remainder of the year under the P.W.A. and C.W.A. Programs with an average of 21 men being employed. The bushes located in 36 towns, in connection with the C.W.A. work during the winter months, were eradicated by the P.W.A. crews, and the work was extended into 67 other towns. This cultivated Ribes eradication project in Connecticut was continued during the winter months of 1934. It is expected that such activities will be completed in most of the state before the end of the year.

In Massachusetts, the black currants were merely located in connection with the C.W.A. project conducted in 17 towns during the winter and early spring months. Such bushes in Massachusetts were eradicated by the owners themselves, or pulled by P.W.A. personnel during the summer months.

The following tables show the results of the special black current elimination projects during 1934, and also summarize all such activities to date.

Table 71.- Summary of Special Black Current Elimination Work
In Northeastern States During 1934

Regular Cooperative Program

	No. Towns		No. Patches Ribes Located	Ribes Pulled			Man Days Worked	Cost								
	Worked	Completed		Nigrum	Other Cult.	Total		Local Co-op.	State	P.W.A.	C.W.A.	E.R.A. & C.P.A.	Total			
State																
Mass.	10	9	393	1,352	-	1,352	252½	185.50	1053.36	-	-	-	-	-	-	1,238.86
N.Y.	16	15	141	836	-	836	237	-	1042.81	-	-	-	-	-	-	1,042.81
Totals	26	24	534	2,188	-	2,188	489½	185.50	2096.17	-	-	-	-	-	-	2,281.67

P.W.A. Program

Mass.	7	21(1)	39	7,486	-	368½	7,486	777.00	52.25	550.04	-	-	-	-	-	1,379.29
N.Y.	1	1	-	-	-	6½	-	-	-	31.50	-	-	-	-	-	31.50
Totals	8	22	39	7,486	-	375	7,486	777.00	52.25	581.54	-	-	-	-	-	1,410.79

(1) Bushes in 15 of these towns located under C.W.A. Program

C.W.A. Program (Location work only)

Mass.	15	-	1280	-	-	448	-	-	-	-	-	2688.11	-	-	-	2,688.11
Conn.	36	-	4124	-	-	1402	-	-	-	348.24	5938.10	-	-	-	-	6,286.34
Totals	51	-	5404	-	-	1850	-	-	-	348.24	8626.21	-	-	-	-	8,974.45

E.R.A. and C.P.A. Programs

(E.C.W.)

Conn.	67	48(2)	13,182	2,409	22,503	24,912	5068	841.00	508.53	654.55	218.40	24,238.20	26,450.68	-	-	-
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(2) Bushes in 36 of these towns were located under C.W.A. Program.

All Programs

Mass.	32	30	1,712	8,838	-	1069	8,838	962.50	1105.61	550.04	2688.11	-	-	-	-	5,306.26
Conn.	103	48	17,306	2,409	22,503	6470	24,912	841.00	508.53	1002.79	6156.50	24,238.20	32,747.02	-	-	-
N.Y.	17	16	141	836	-	243½	836	-	1042.81	31.50	-	-	1,074.31	-	-	-
Totals	152	94	19,159	12,083	22,503	7782½	34,586	1803.50	2656.95	1584.33	8844.61	24,238.20	39,127.59	-	-	-

(3) Includes \$218.40 E.C.W. expenditure.

Basis of costs: See Page 73.

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Table 72.- Summary of Special Black Currant Elimination Work in Northeastern States, 1918-1934, Incl.

All Programs

State	Ribes Pulled		Cost									
	Nigrum	Other Cult.	Total	Indiv.	Towns	State	Govt.				Total	
							B.P.I.	P.W.A.	E.C.W.	C.W.A.		IRA & CPA
Mass.	37,629*	-	37,629	2817.00	-	20,038.41	100.00	550.04	-	2688.11	-	26,193.56
R.I.	16,219	1,093	17,312	-	-	9,178.55	675.53	473.80	-	-	-	10,327.88
Conn.	2,763	41,199	43,962	-	841.00	3,017.86	3647.42	1915.05	218.40	5938.10	24,238.20	39,816.03
N. Y.	35,181	761	35,942	-	-	26,419.55	-	31.50	-	-	-	26,451.05
Totals	91,792	43,053	134,845	2817.00	841.00	58,654.37	4422.95	2970.39	218.40	8626.21	24,238.20	102,788.52

*Includes 556 bushes pulled in connection with special Ribes eradication work around nurseries in 1925 and 1926 at a cost of \$367.89 to the state.

Basis of costs: Wages and expenses of all men engaged in locating and pulling Ribes nigrum when such work was conducted as special project. Cost of E.C.W. enlisted personnel used on project in Connecticut during 1934 figured at rate of \$1.40 per eight hour day.

Table 73.- Status of Special Black Currant Elimination Projects
In Northeastern States - December 31, 1934.

State	Years Work Performed	Total Number Townships In State	No. Townships Where Black Current Elimination Work		No. Townships Where Black Currents Located But Not Eradicated
			Completed	Partially Completed	
Mass.	1930-1934 Incl.	355	338	2	-
R.I.	1929-1933 "	39	39	-	-
Conn.	1930-1934 "	168	70	20	35
N.Y.	1930-1934 "	1012	198	97	-
Totals	-	1574	645	119	35

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1. The first part of the paper is devoted to a general discussion of the problem of the existence of solutions of the system of equations (1) for arbitrary values of the parameters α and β . It is shown that the system of equations (1) has solutions for arbitrary values of the parameters α and β if and only if the condition $\alpha + \beta = 1$ is satisfied. The case $\alpha + \beta \neq 1$ is not considered in this paper.

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1900	1901	1902	1903	1904	1905	1906	1907	1908	1909
1900	19								

Source: The National Archives at College Park, Maryland.

[illegible]

In Holmwood estate - December 1947

Station	Time	Frequency	Power	Remarks
1	1200	1000	100	Normal
2	1205	1000	100	Normal
3	1210	1000	100	Normal
4	1215	1000	100	Normal
5	1220	1000	100	Normal
6	1225	1000	100	Normal
7	1230	1000	100	Normal
8	1235	1000	100	Normal
9	1240	1000	100	Normal
10	1245	1000	100	Normal
11	1250	1000	100	Normal
12	1255	1000	100	Normal
13	1300	1000	100	Normal
14	1305	1000	100	Normal
15	1310	1000	100	Normal
16	1315	1000	100	Normal
17	1320	1000	100	Normal
18	1325	1000	100	Normal
19	1330	1000	100	Normal
20	1335	1000	100	Normal
21	1340	1000	100	Normal
22	1345	1000	100	Normal
23	1350	1000	100	Normal
24	1355	1000	100	Normal
25	1400	1000	100	Normal
26	1405	1000	100	Normal
27	1410	1000	100	Normal
28	1415	1000	100	Normal
29	1420	1000	100	Normal
30	1425	1000	100	Normal
31	1430	1000	100	Normal
32	1435	1000	100	Normal
33	1440	1000	100	Normal
34	1445	1000	100	Normal
35	1450	1000	100	Normal
36	1455	1000	100	Normal
37	1500	1000	100	Normal
38	1505	1000	100	Normal
39	1510	1000	100	Normal
40	1515	1000	100	Normal
41	1520	1000	100	Normal
42	1525	1000	100	Normal
43	1530	1000	100	Normal
44	1535	1000	100	Normal
45	1540	1000	100	Normal
46	1545	1000	100	Normal
47	1550	1000	100	Normal
48	1555	1000	100	Normal
49	1600	1000	100	Normal
50	1605	1000	100	Normal
51	1610	1000	100	Normal
52	1615	1000	100	Normal
53	1620	1000	100	Normal
54	1625	1000	100	Normal
55	1630	1000	100	Normal
56	1635	1000	100	Normal
57	1640	1000	100	Normal
58	1645	1000	100	Normal
59	1650	1000	100	Normal
60	1655	1000	100	Normal
61	1700	1000	100	Normal
62	1705	1000	100	Normal
63	1710	1000	100	Normal
64	1715	1000	100	Normal
65	1720	1000	100	Normal
66	1725	1000	100	Normal
67	1730	1000	100	Normal
68	1735	1000	100	Normal
69	1740	1000	100	Normal
70	1745	1000	100	Normal
71	1750	1000	100	Normal
72	1755	1000	100	Normal
73	1800	1000	100	Normal
74	1805	1000	100	Normal
75	1810	1000	100	Normal
76	1815	1000	100	Normal
77	1820	1000	100	Normal
78	1825	1000	100	Normal
79	1830	1000	100	Normal
80	1835	1000	100	Normal
81	1840	1000	100	Normal
82	1845	1000	100	Normal
83	1850	1000	100	Normal
84	1855	1000	100	Normal
85	1900	1000	100	Normal
86	1905	1000	100	Normal
87	1910	1000	100	Normal
88	1915	1000	100	Normal
89	1920	1000	100	Normal
90	1925	1000	100	Normal
91	1930	1000	100	Normal
92	1935	1000	100	Normal
93	1940	1000	100	Normal
94	1945	1000	100	Normal
95	1950	1000	100	Normal
96	1955	1000	100	Normal
97	2000	1000	100	Normal
98	2005	1000	100	Normal
99	2010	1000	100	Normal
100	2015	1000	100	Normal

EFFECTIVENESS OF BLISTER RUST CONTROL

During 1934, plot and strip line studies were made to determine the amount of blister rust infection on white pines in protected and unprotected areas in the Northeastern States. The disease had existed in these tracts since 1914. Ribes eradication in the control areas had been limited to initial work performed during the period 1923-1930, inclusive. In protected areas in New Hampshire, New York, Vermont, and Pennsylvania, 37 plots, comprising 72.6 acres, were laid out in 26 towns, and the white pines were examined carefully for infection. Out of a total of 19,835 pines, 4,435, or 22.4%, were infected with 9096 cankers. Even though the protection work had been conducted 4 to 11 years previous, only 2.2% of the total diseased trees became infected for the first time after the areas were cleared of Ribes, and only 2.2% of the total cankers originated after that time. Infection conditions in protected areas were also determined in 23 towns in New York and New Hampshire by examining all pines under 20 feet in height on 13 miles of rod-wide strip lines. A total of 5530, or 35% of the 15,808 pines on the strips were infected with 7,847 cankers. Only 1.8% of these diseased pines became infected for the first time after the application of control measures, and only 2.3% of the cankers originated since protection was established.

In unprotected areas, plot studies were made in 35 towns in six states. The 45 plots comprised 31.2 acres. Blister rust had infected 8,760 white pines, or 49.9% of the 17,569 trees of this species. Most of the 22,238 cankers were of recent origin. In fact, 39.8% of them originated during 1930 and 1931, which shows the danger of delaying protection work.

Infection conditions on these protected and non-protected areas are shown graphically in the following two charts.

During 1934, plot and strip line studies were made to determine the amount of blister rust infection on white pines in protected and unprotected areas in the Northeastern States. The disease had existed in these forests since 1914. Ribes eradication in the control areas had been limited to initial work performed during the period 1927-1930, inclusive. In treated areas in New Hampshire, New York, Vermont, and Pennsylvania, 37 plots, comprising 78.6 acres, were laid out in 26 towns, and the white pines were examined carefully for infection. Out of a total of 19,875 pines, 4,435, or 22.4%, were infected with 2036 cankers. Even though the protection work had been conducted 1 to 11 years previous, only 2.2% of the total diseased trees became infected for the first time after the areas were cleared of Ribes, and only 2.2% of the total cankers originated after that time. Infection conditions in protected areas were also determined in 23 towns in New York and New Hampshire by examining all pines under 20 feet in height on 1 1/2 miles of red-wide strip lines. A total of 5530, or 35% of the 15,808 pines on the strips were infected with 7,847 cankers. Only 1.8% of these diseased pines became infected for the first time after the application of control measures, and only 1.7% of the cankers originated since protection was established.

In unprotected areas, plot studies were made in 25 towns in six states. The 25 plots comprised 21.2 acres. Blister rust had infected 1,760 white pines, or 42.9% of the 17,503 trees of this species. Most of the 22,234 cankers were of recent origin. In fact, 39.4% of them originated during 1930 and 1931, when none the danger of delaying protection work.

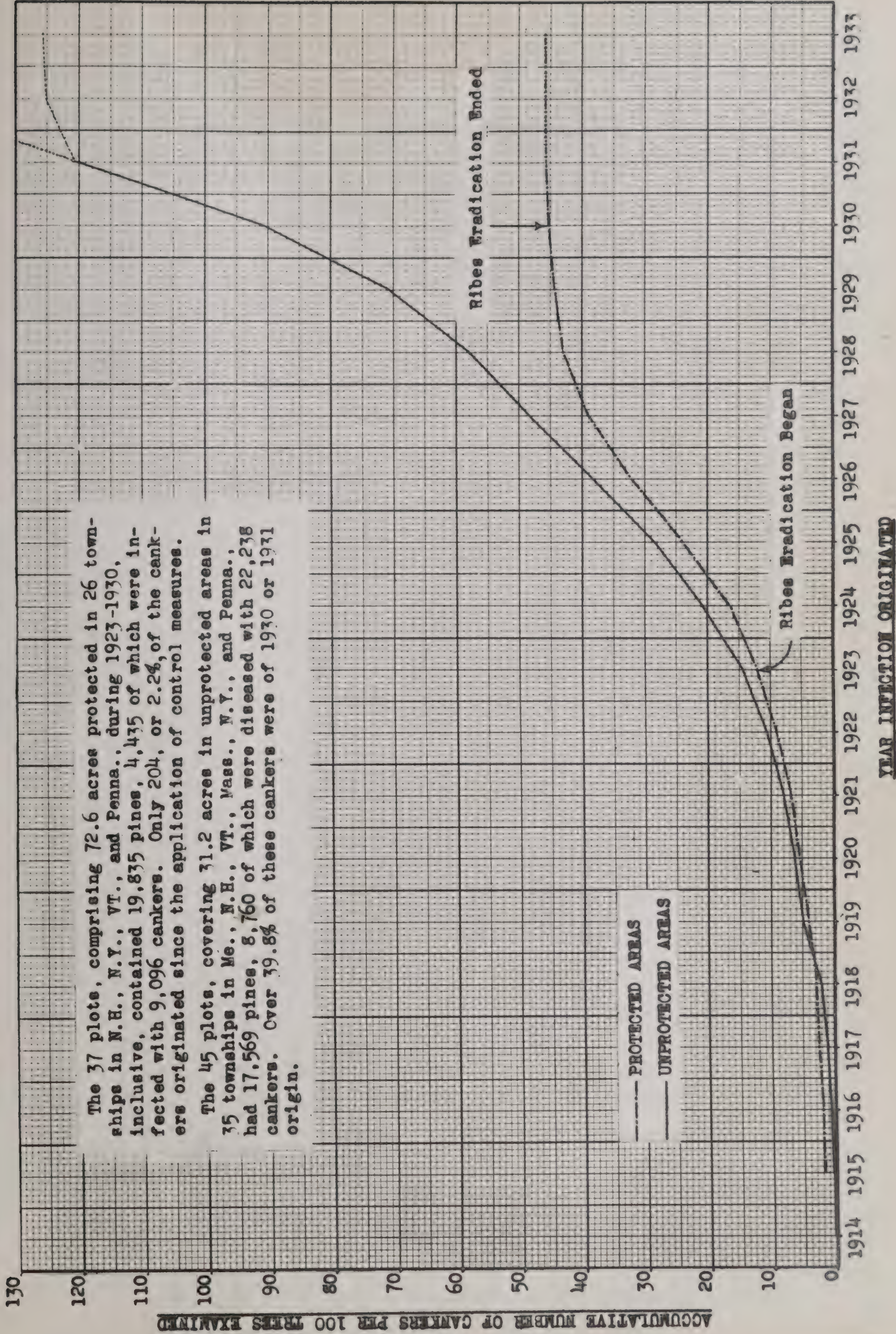
Infection conditions on these protected and non-protected areas are shown graphically in the following two charts.

BLISTER RUST INFECTION ON WHITE PINES IN PROTECTED AND UNPROTECTED AREAS IN NORTHEASTERN STATES

(1934 Field Studies)

The 37 plots, comprising 72.6 acres protected in 26 townships in N.H., N.Y., VT., and Penna., during 1923-1930, inclusive, contained 19,835 pines, 4,435 of which were infected with 9,096 cankers. Only 204, or 2.2%, of the cankers originated since the application of control measures.

The 45 plots, covering 31.2 acres in unprotected areas in 35 townships in Me., N.H., VT., Mass., N.Y., and Penna., had 17,569 pines, 8,760 of which were diseased with 22,238 cankers. Over 39.8% of these cankers were of 1930 or 1931 origin.



EFFECTIVENESS OF RIBES ERADICATION IN CONTROLLING BLISTER RUST INFECTION ON WHITE PINES IN NORTHEASTERN STATES

(1934 Field Studies)

The 1934 examinations include plot and strip line studies made in areas protected during 1923-1930, inclusive. The 37 plots, comprising 72.6 acres, were located in 26 townships in N.H., Vt., N.Y., and Penna. These plots contained 19,835 white pines, 4,475 of which were infected with 9,096 cankers. Only 2.2% of the total diseased trees became infected for the first time after the areas were cleared of Ribes, and only 2.2% of the total cankers originated after that time.

The strip lines, one rod wide by 13 miles in length, were run through parts of 23 townships in N.H. and N.Y. A total of 15,808 pines were examined on the strips; 5,530 of the trees were infected with 7,847 cankers. Only 1.8% of these diseased pines became infected for the first time after the application of control measures, and only 2.3% of the cankers originated since protection was established.

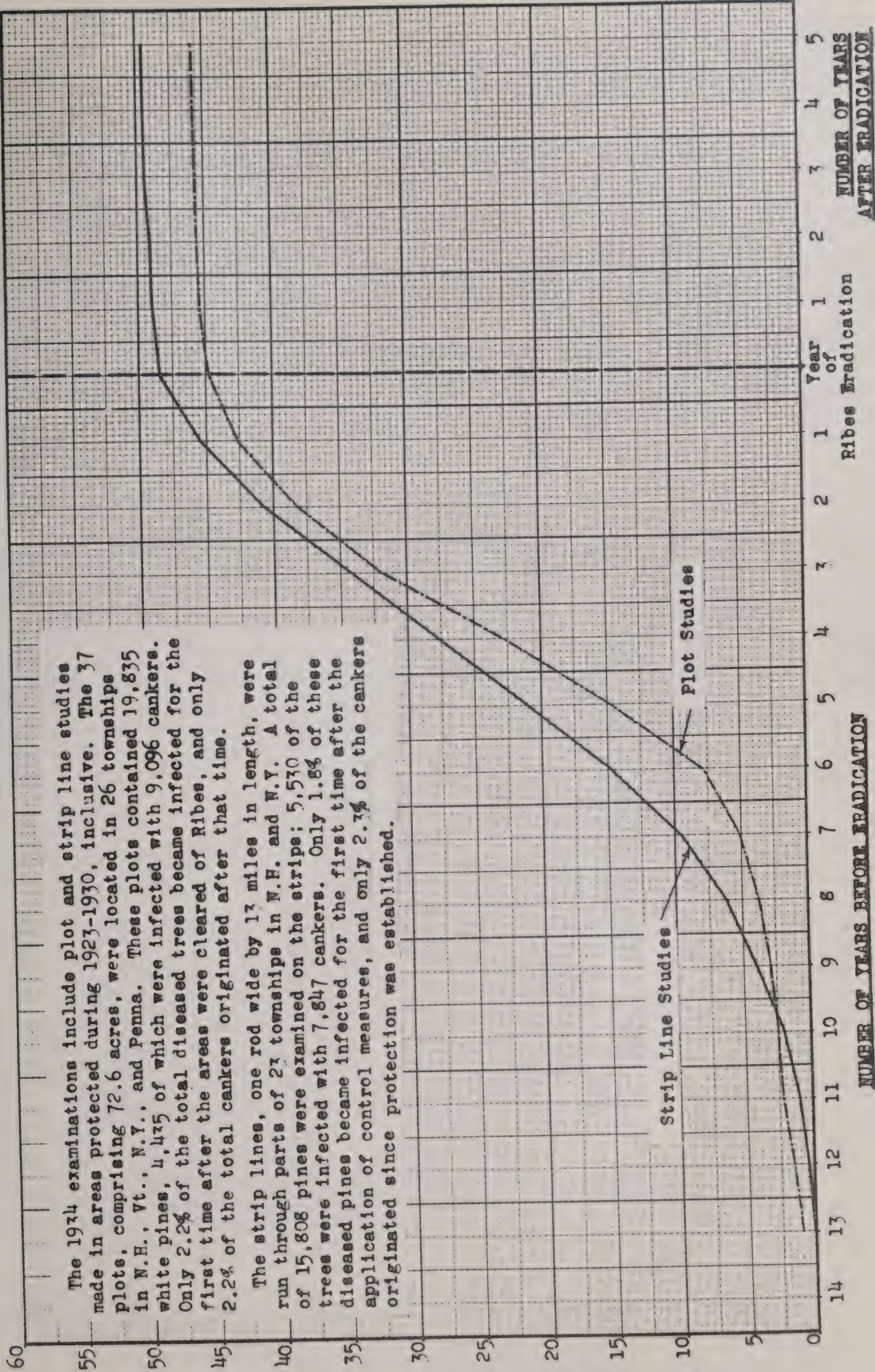


Table 74.- STATE COMPENSATION PAID FOR CULTIVATED RIBES DESTROYED IN NORTHEASTERN STATES

1934

State	No. Bushes For Which Compensation Was Actually Paid	No. Persons Paid Compensation	Amount Paid in Reimbursement
Mass.	630	12	\$247.45
N. Y.	246	23	123.05
Total	876	35	370.50

1922-1934

N. H.	752	26	138.15
Vt.	1539	122	742.91
Mass.	23,755	396	8,520.50
R. I.	94	7	35.85
Conn.	175	16	103.50
N. Y.	5,013	759	2,076.46
Totals	31,328	1326	11,617.37

1918-1934

N. H.	2,008	63	550.60
Vt.	1,594	128	766.91
Mass.	40,927	652	14,476.80
R. I.	1,410	58	509.79
Conn.	175	16	103.50
N. Y.	15,260	1066	5,150.04
Totals	61,374	1983	21,557.64

The Vermont data include \$86.25 compensation paid by individual cooperators in 1926 and 1933 to 10 owners of cultivated Ribes for the removal of 181 bushes.

The Massachusetts data include \$5655.05 paid in 1918 to 253 persons for 16,517 bushes destroyed in 1917 and 1918, mostly in 1917. It is impossible to separate the 1917 data.

The Connecticut data include \$76.25 paid in 1930 by individual cooperators (nurserymen) to 12 owners of cultivated bushes for the removal of 114 bushes.

1917

State	No. Bushes For Which Compensation Was Actually Paid	No. Persons Paid Compensation	Amount Paid in Reimbursement
Verm.	230	12	\$247.44
N. Y.	246	23	123.00
Total	476	35	370.44

1922-1934

State	No. Bushes For Which Compensation Was Actually Paid	No. Persons Paid Compensation	Amount Paid in Reimbursement
N. H.	152	26	138.12
Vt.	123	122	742.91
Mass.	23,122	392	8,250.20
N. J.	24	1	32.82
Conn.	172	16	107.50
N. Y.	2,013	159	2,076.46
Total	31,398	1,726	11,617.31

1918-1934

State	No. Bushes For Which Compensation Was Actually Paid	No. Persons Paid Compensation	Amount Paid in Reimbursement
N. H.	2,008	67	250.80
Vt.	1,224	128	766.91
Mass.	40,227	622	14,476.80
N. J.	1,410	28	509.72
Conn.	172	16	107.50
N. Y.	12,560	1,066	2,110.74
Total	61,771	1,887	21,627.64

The Vermont data include \$86.25 compensation paid by individual cooperators in 1926 and 1933 to 10 owners of cultivated Ribes for the removal of 181 bushes. The Massachusetts data include \$262.02 paid in 1918 to 22 persons for 16,217 bushes destroyed in 1917 and 1918, mostly in 1917. It is impossible to separate the 1917 data. The Connecticut data include \$76.25 paid in 1930 by individual cooperators (nurserymen) to 12 owners of cultivated bushes for the removal of 114 bushes.

Table 75.- Comparison of Total Number Ribes Destroyed and Number of Bushes For Which Compensation Was Paid in Northeastern States - 1918-1934, Inclusive

<u>State</u>	<u>Total Number Cultivated Ribes Destroyed</u>	<u>Number Bushes For Which Compensation Was Actually Paid</u>	<u>% Bushes Paid For</u>
Maine	126,645	0	0
N. H.	144,740	2,008	1.4
Vt.	11,172	1,594	14.3
Mass.	287,222	40,927	14.2
R. I.	30,920	1,410	4.6
Conn.	68,619	175	0.3
N. Y.	108,971	15,260	14.0
N. J.	1,212	0	0
Penna.	8,271	0	0
Totals	787,772	61,374	7.8

Excellent cooperation has been obtained from the owners of cultivated Ribes in the control areas of the Northeastern States. No compensation has been paid for the 126,645 cultivated Ribes destroyed in connection with the control program in Maine during the period 1918-1934, inclusive, and for such bushes removed in Pennsylvania and New Jersey where control work has been in progress since 1929. In Connecticut and New Hampshire it has been necessary to pay compensation for only 0.3% and 1.4%, respectively, of the total cultivated bushes removed.

During the past two years (1933 and 1934) a total of 87,702 cultivated bushes have been destroyed in the Northeastern States and compensation paid for only 1357, or 1.5%, of the bushes.

Table 7. - Comparison of Total Number Ripes Destroyed and Number of Bushes
For Which Compensation Was Paid in Northeastern States - 1918-1934, Inclusive

State	Total Number Cultivated Ripes Destroyed	Number Bushes For Which Compensation Has Actually Paid	Number Bushes Paid For
Maine	126,645	0	0
N. H.	144,740	2,008	1.4
Vt.	11,173	1,294	14.3
N. J.	287,323	40,927	14.2
N. I.	30,920	1,410	4.6
Conn.	68,619	175	0.3
N. Y.	108,971	15,260	14.0
N. C.	1,212	0	0
Penn.	8,271	0	0
Totals	787,772	61,374	7.8

Excellent cooperation has been obtained from the owners of cultivated Ripes in the control areas of the Northeastern States. No compensation has been paid for the 126,645 cultivated Ripes destroyed in connection with the control program in Maine during the period 1918-1934, inclusive, and for which bushes removed in Pennsylvania and New Jersey where control work has been in progress since 1929. In Connecticut and New Hampshire it has been necessary to pay compensation for only 0.34 and 1.42, respectively, of the total cultivated bushes removed.

During the past two years (1933 and 1934) a total of 87,702 cultivated bushes have been destroyed in the Northeastern States and compensation paid for only 1377, or 1.54, of the bushes.

WHITE PINE BLISTER RUST CANKER ELIMINATION -1934

At Acadia National Park, a small crew of from 5 to 11 C.C.C. men under the direction of a technical foreman were used for 159 man days during October and November on blister rust canker elimination work. It was confined to valuable scenic pines along carriage roads in the vicinity of Eagle Lake and Aunt Betty's Pond. In addition, treatment was also extended to the pines along the so-called New Eagle Lake Road and the Lower Mountain Road. A total of 524 pines along 11.2 miles of roadway were treated; the trees averaged 42 feet in height. Over 1300 branch infections and 70 dead or dying tops were removed. In addition, 62 trunk cankers were cut out and 138 fatally diseased pines, mostly trees under 20 feet in height, were destroyed.

Under the C.W.A. Program in Massachusetts, canker elimination work was conducted in three of the agents' districts during 1934; 4341 acres of pine being examined on municipally-owned lands. A total of 17,303 pines with stem cankers were destroyed, and 17,511 branch infections were pruned from 12,784 other pines. This project consumed 43,270 man hours during the period from November 27, 1933 to April 19, 1934 and cost \$24,255.74. This work was carried on under many handicaps, including the most severe winter experienced in years. An incomplete summary of this Massachusetts project was given in the 1933 annual report of blister rust control activities in the Northeastern States.

In Pennsylvania, E.C.W. crews were used on blister rust canker removal work in state plantations during the period December, 1934 to April, 1935, inclusive. The following is a summary of the results of this work.

Estimated number pines examined-----	181,694
Number fatally infected pines cut down-----	14,566
Number pines treated for infection-----	39,633
Number cankers removed-----	(Branch----- 178,584
	(Stem----- 19,189
Total man days worked-----	1,817

WHITE PINE BLISTER MUST CANKER ELIMINATION - 1934

At Acadia National Park, a small crew of 5 to 10 C.C. men under the

direction of a technical foreman were used for 159 man days during October and November on blister must cancer elimination work. It was confined to valuable scenic pines along carriage roads in the vicinity of Eagle Lake and Aunt Betty's Pond. In addition, treatment was also extended to the pines along the so-called New Eagle Lake Road and the Lower Mountain Road. A total of 524 pines along 11.5 miles of roadway were treated; the trees averaged 45 feet in height. Over 1300 branch infections and 70 dead or dying tops were removed. In addition, 62 trunk cankers were cut out and 138 fatally diseased pines, mostly trees under 30 feet in height, were destroyed.

Under the C.W.A. Program in Massachusetts, cancer elimination work was conducted in three of the several districts during 1934: 1941 acres of pine being examined on municipally-owned lands. A total of 17,303 pines with stem cankers were destroyed, and 17,511 branch infections were pruned from 12,784 other pines. This project consumed 47,270 man hours during the period from November 27, 1933 to April 19, 1934 and cost \$24,525.74. This work was carried on under many handicaps, including the most severe winter experienced in years. An incomplete summary of this Massachusetts project was given in the 1937 annual report of blister must control activities in the Northeastern States.

In Pennsylvania, E.C.W. crews were used on blister must cancer removal work in state plantations during the period December, 1934 to April, 1935, inclusive. The following is a summary of the results of this work.

Estimated number pines examined	181,694
Number fatally infected pines cut down	14,566
Number pines treated for infection	39,633
Number cankers removed	176,524
(Branch)	19,189
(Stem)	1,817
Total man days worked	1,817

The results of the work in Pennsylvania during 1934 and 1935 are summarized in the following table:

PINE AND CONTROL AREA MAPPING

During the period from October, 1934 to May, 1935, inclusive, pine and control area mapping was conducted in all of the Northeastern States, except New Jersey. Such activities were performed by some of the permanent district agents in Maine, New Hampshire, Vermont, Massachusetts and New York. A few temporary state employees in Maine, New Hampshire, Connecticut and New York also assisted in the mapping work. Under the E.C.W. Program in Maine, New Hampshire, Rhode Island, Connecticut and Pennsylvania, the blister rust checkers were used on mapping projects during the winter. Several enlisted men aided them in this work in New Hampshire and Pennsylvania. Mapping was also done by employees paid from P.W.A. funds in Massachusetts, New York and Pennsylvania; while such E.R.A. activities were confined to Connecticut and New York. As a result of the work done under all programs, a total of 574,808 acres were mapped in detail and an additional 1,571,348 acres were examined, but not mapped due to lack of sufficient pine to justify control work. This mapping is an essential part of blister rust control, especially when the eradication work is performed by crews composed of inexperienced men secured from the welfare lists. Such maps assist the crew foremen in locating the boundaries of the control areas, and consequently limit their activities chiefly to crew supervision.

The accomplishments under each program are summarized, by states, in the following table.

Table 76.- Pine And Control Area Mapping In Northeastern States
October, 1934 to May, 1935.

State	Program	Acreage Mapped	Acreage Examined But Not Mapped	Man Days Worked
Maine	Regular	3,596	1,302	24
	P.W.A.	5,120	16,286	46
	E.C.W.	111,476	84,360	763
	Total	120,192	101,948	833
N. H.	Regular	13,552	390	225
	P.W.A.	6,480	13,125	153
	E.C.W.	14,226	2,740	463
	Total	34,258	16,255	841
Vt.	P.W.A.	11,740	10,100	51
Mass.	P.W.A.	36,801	5,510	245
R. I.	E.C.W.	27,483	-	226
Conn.	Regular	120	1,600	7
	E.C.W.	9,590	16,772	92
	E.R.A.	19,035	1,094,990	1913
	Total	28,745	1,113,362	2017
N. Y.	Regular	124,685	67,320	644
	P.W.A.	98,195	119,408	728
	E.R.A.	41,313	2,000	223
	Total	264,193	188,728	1595
Penna.	E.C.W.	45,119	135,445	3814
	P.W.A.	6,277	-	129
	Total	51,396	135,445	3943
All States	Regular	141,953	70,612	900
	P.W.A.	164,613	164,429	1352
	E.C.W.	207,894	239,317	5358
	E.R.A.	60,348	1,096,990	2141
	Totals	574,808	1,571,348	9751

During the period from October, 1934 to May, 1935, inclusive, pine and control areas in the Northeastern States, except the Jersey, New Hampshire, Vermont, Massachusetts and New York. A few temporary state employees in Maine, New Hampshire, Connecticut and New York also assisted in the mapping work. Under the E.O.P. Program in Maine, New Hampshire, Rhode Island, Connecticut and Pennsylvania, the blisters were mapped by means of a blower project during the winter. Several additional men were used in this work in New Hampshire and Pennsylvania; while employees from E.O.P. units in Massachusetts, New York and Pennsylvania; while E.O.P. activities were confined to Connecticut and New York. As a result of the work done under all programs, a total of 74,504 acres were mapped in detail and an additional 1,113,308 acres were examined, but not mapped due to lack of sufficient time to justify control work. This mapping is an essential part of blower that control, especially since the eradication work is performed by crews composed of inexperienced men secured from the welfare lists. Such maps assist the crew foremen in locating the boundaries of the control areas, and consequently limit their activities chiefly to crew supervision.

The accomplishments under each program are summarized, by states, in the following table.

Table No. - Pine and Control Area Mapping in Northeastern States
October, 1934 to May, 1935.

State	Program	Acres Mapped	Acres Examined But Not Mapped	Men Days Worked
Maine	Regular	1,798	1,302	24
	E.O.P.	2,120	18,288	48
	E.O.P.	111,478	24,360	167
	Total	120,196	101,948	239
	Regular	11,822	300	208
N. H.	E.O.P.	6,480	13,125	157
	E.O.P.	14,228	7,740	403
	Total	20,708	18,225	541
	E.O.P.	11,700	10,100	51
	E.O.P.	18,301	2,210	248
Mass.	Regular	21,183	-	228
	Regular	120	1,600	1
	E.O.P.	2,590	18,112	38
	E.O.P.	19,032	1,004,960	138
	Total	22,795	1,113,362	207
N. J.	Regular	124,682	61,120	644
	E.O.P.	98,192	112,408	124
	E.O.P.	41,717	2,000	283
	Total	264,191	188,728	1,051
	E.O.P.	2,119	122,445	117
Penn.	E.O.P.	6,271	-	120
	Total	21,396	122,445	2043
All States	Regular	141,027	70,612	900
	E.O.P.	184,313	164,429	1322
	E.O.P.	201,294	239,317	1322
	E.O.P.	62,308	1,002,960	2141
	Total	588,942	1,477,318	4785

Table 77.- PERSONNEL EMPLOYED ON BLISTER RUST CONTROL WORK IN THE
NORTHEASTERN STATES DURING 1934

State	Me.	N.H.	Vt.	Mass.	R.I.	Conn.	N.Y.	N.J.	Penna.	Totals
State Leaders	1	1	-	1	1	1	1	1	1	8
Permanent District B.R.C. Agents	4	6	3	5	-	-	10	-	1	29
Supervisors, Regular	-	-	-	-	1	-	8	-	2	11
Technical Foremen and Checkers	E.C.W. 35	20	9	9	5	13	121	-	77	289
	P.W.A. -	-	-	-	-	1	1	-	-	2
	C.W.A. & E.R.A. -	-	-	1	-	3	-	-	-	4
	Total 35	20	9	10	6	17	130	-	79	306
Crew Men (Includes crew fore- men, scouts, straw bosses & laborers)	Regular 17	242	-	80	-	(2)	95	-	58	492
	E.C.W. 190	122	110	58	62	136	671	3	518	1870
	P.W.A. 133	143	39	629(1)	12	29	134	1	104	1224
	C.W.A. & E.R.A. 12	-	-	137	-	91	20	-	-	260
	Total 352	507	149	904	74	256	920	4	630	3846
Totals	392	534	161	920	81	274	1061	5	761	4189

(1) Includes 586 individual cooperators who participated in control work.

(2) The 29 crew men employed under the P.W.A. Program were transferred to work under the Regular Cooperative Program during the latter part of the season.

A total of 3903 state and federal employees were actively engaged in blister rust control work in the Northeastern States during 1934. Actually, the number of men employed was much greater, because the figures for the E.C.W. enlisted personnel were based on the average number of men for a full four months' period. This latter basis permitted a direct comparison of the number of E.C.W. men assigned to control work in the various states. An additional 586 individuals (pine or Ribes owners or their employees) assisted in eradicating wild and cultivated Ribes on their properties. Thus, at least 4,189 persons actually participated in the field work. Several hundred other persons permitted the destruction of their cultivated Ribes without compensation, and hundreds of others gave general support to the control program. Estimated conservatively, at least 7000 persons were concerned directly or indirectly in the 1934 control work in the Northeastern States.

Table 7. - EMPLOYMENT OF RIFES MEN IN THE
NORTHEASTERN STATES DURING 1934

State	Me.	N.H.	Vt.	Mass.	N.I.	Conn.	N.Y.	N.J.	Pa.	Total
State leaders	1	1	-	1	1	1	1	1	1	8
Inspection District	4	6	7	2	-	-	10	-	1	29
R.S.C. Agents	-	-	-	-	1	-	3	-	2	11
Supervisors, Regular	25	20	9	9	2	13	121	-	17	239
Technical	-	-	-	-	-	1	1	-	-	2
Foremen	-	-	-	-	-	-	-	-	-	-
and	-	-	-	1	-	2	-	-	-	4
Cooperators	-	-	-	1	-	-	-	-	-	-
Total	35	30	9	10	3	17	130	-	20	305
Crew men	17	245	-	80	-	(2)	95	-	28	462
(Includes	190	122	110	88	62	176	671	3	518	1870
crew men- men, agents, other persons	132	143	39	628(1)	12	29	134	1	104	1224
Total	325	507	149	907	74	526	920	4	630	2342
Total	392	534	161	920	31	574	1001	5	701	4189

- (1) Includes 286 individual cooperators who participated in control work.
(2) The 29 crew men employed under the R.W.A. Program were transferred to work under the Regular Cooperative Program during the latter part of the season.

A total of 2307 state and federal employees were actively engaged in control work in the Northeastern States during 1934. Actually, the number of men employed was much greater, because the figures for the R.W.A. enlisted personnel were based on the average number of men for a full four months' period. This latter basis permitted a direct comparison of the number of R.C.W. men assigned to control work in the various states. An additional 286 individuals (nine or fifteen owners or their employees) assisted in eradicating wild and cultivated Rifes on their properties. Thus, at least 4,189 persons actually participated in the field work. Several hundred other persons permitted the destruction of their cultivated Rifes without compensation, and hundreds of others gave general support to the control program. Estimated conservatively, at least 7000 persons were concerned directly or indirectly in the 1934 control work in the Northeastern States.

PERMANENT BLISTER RUST CONTROL PERSONNEL IN THE NORTHEASTERN STATES - 1934

EASTERN CONTROL PROGRAM
(COOPERATIVE ACTIVITIES)
J. F. MARTIN - SR. PATH.
(WASHINGTON, D.C.)

NORTHEASTERN STATES
(BOSTON, MASS.)
E. C. FILLER - SR. PATH.
K. K. STIMSON - Agent
C. A. FURCELL - Jr. Ch. Sten.

CONTROL SPECIALISTS
L. W. HOOKINS - Agent
K. K. STIMSON "

ACADIA NATIONAL PARK
ALLEGHENY NAT. FOREST
Temporary Personnel
assigned as needed.

MAINE
W. O. FROST Assoc. PATH.
(State Leader)

CONTROL UNITS

HELIPAST
H. G. BRADBURY - Agent

AUBURN
G. H. KIMBALL - Agent

NORTH BRIDGTON
D. S. LUTIS - Agent

WATERVILLE
J. M. WHITE - Agent

NEW YORK
H. L. McINTYRE - Collab.
(State Leader)

CONTROL UNITS

WARRENBURG
N. H. HARRY - Agent
E. G. WOODWARD "

SARATOGA SPRINGS
P. E. BARBER - Agent

HYDE PARK
H. G. STRAIT - Agent

GLOVERSVILLE
J. W. CHARLTON - Agent

LEWIS
B. H. NICHOLS - Agent

BATH
H. W. HOLCOMB - Agent

SAND LANE
H. J. McCASLAND - Agent

GOVERNEUR
C. B. KRESGE - Agent

BOONVILLE
T. P. WOOLSCHLAGER - Agent

NEW HAMPSHIRE
L. E. NEWMAN
(State Leader)
I. W. PEABODY - Clerk (Coop.)

CONTROL UNITS

KEENE
F. J. BAKER - Agent

CONCORD
T. J. KING - Agent

LEBANON
G. F. RICHARDSON - Agent

CONWAY
S. H. BOOMER - Agent

EXETER
L. C. SWAIN - Agent

WOODSVILLE
T. L. KANE - Agent

MASSACHUSETTS
C. C. PERRY - Agent
(State Leader)
H. E. CALLEN - Clerk (Coop.)

CONTROL UNITS

W. SPRINGFIELD
R. E. WHEELER - Agent

NORTH ADINGTON
E. M. BRUCKWAY - Agent

GT. BARRINGTON
C. S. DOORE - Agent

ARLINGTON Hts.
W. T. ROOP - Agent

WORCESTER
Wm. CLAVE - Agent

NEW JERSEY
P. B. MOTT - Agent
(State Leader)

CONNECTICUT
J. E. RILEY Assoc. PATH.
(State Leader)

VERMONT
P. H. MERRILL - Collab.
(State Leader)

RHODE ISLAND
A. W. HURFORD - Agent
(State Leader)

PENNSYLVANIA
R. P. PATZINGER - Agent
(State Leader)

CONTROL UNIT

Temporary Personnel
assigned as needed.

CONTROL UNITS

RUTLAND
W. E. BRADDER - Agent

ST. JOHNSBURY
E. H. PALMER - Agent

BELLOWS FALLS
F. M. ROSE - Agent

CONTROL UNIT

Temporary Personnel
assigned as needed.

CONTROL UNITS

Temporary Personnel
assigned as needed.

BROOKVILLE
M. DE BERTI - Agent

TABLE 1 - TOTAL STATE AND FEDERAL EXPENDITURES ON ALL COOPERATIVE BLISTER RUST CONTROL WORK IN NORTHEASTERN STATES

Source: U.S. Department of Agriculture, Forest Service, Northeastern Forestry Experiment Station, Washington, D.C.

State	Federal	State	Total
Connecticut	100,000	100,000	200,000
Delaware	100,000	100,000	200,000
Florida	100,000	100,000	200,000
Georgia	100,000	100,000	200,000
Idaho	100,000	100,000	200,000
Illinois	100,000	100,000	200,000
Indiana	100,000	100,000	200,000
Iowa	100,000	100,000	200,000
Kansas	100,000	100,000	200,000
Kentucky	100,000	100,000	200,000
Louisiana	100,000	100,000	200,000
Maine	100,000	100,000	200,000
Massachusetts	100,000	100,000	200,000
Michigan	100,000	100,000	200,000
Minnesota	100,000	100,000	200,000
Mississippi	100,000	100,000	200,000
Missouri	100,000	100,000	200,000
Montana	100,000	100,000	200,000
Nebraska	100,000	100,000	200,000
Nevada	100,000	100,000	200,000
New Hampshire	100,000	100,000	200,000
New Jersey	100,000	100,000	200,000
New Mexico	100,000	100,000	200,000
New York	100,000	100,000	200,000
North Carolina	100,000	100,000	200,000
North Dakota	100,000	100,000	200,000
Ohio	100,000	100,000	200,000
Oklahoma	100,000	100,000	200,000
Oregon	100,000	100,000	200,000
Pennsylvania	100,000	100,000	200,000
Rhode Island	100,000	100,000	200,000
South Carolina	100,000	100,000	200,000
South Dakota	100,000	100,000	200,000
Tennessee	100,000	100,000	200,000
Texas	100,000	100,000	200,000
Utah	100,000	100,000	200,000
Vermont	100,000	100,000	200,000
Virginia	100,000	100,000	200,000
Washington	100,000	100,000	200,000
West Virginia	100,000	100,000	200,000
Wisconsin	100,000	100,000	200,000
Wyoming	100,000	100,000	200,000
Total	100,000	100,000	200,000

TOTAL STATE AND FEDERAL EXPENDITURES ON ALL

COOPERATIVE BLISTER RUST CONTROL WORK

IN NORTHEASTERN STATES

State	Federal	State	Total
Connecticut	100,000	100,000	200,000
Delaware	100,000	100,000	200,000
Florida	100,000	100,000	200,000
Georgia	100,000	100,000	200,000
Idaho	100,000	100,000	200,000
Illinois	100,000	100,000	200,000
Indiana	100,000	100,000	200,000
Iowa	100,000	100,000	200,000
Kansas	100,000	100,000	200,000
Kentucky	100,000	100,000	200,000
Louisiana	100,000	100,000	200,000
Maine	100,000	100,000	200,000
Massachusetts	100,000	100,000	200,000
Michigan	100,000	100,000	200,000
Minnesota	100,000	100,000	200,000
Mississippi	100,000	100,000	200,000
Missouri	100,000	100,000	200,000
Montana	100,000	100,000	200,000
Nebraska	100,000	100,000	200,000
Nevada	100,000	100,000	200,000
New Hampshire	100,000	100,000	200,000
New Jersey	100,000	100,000	200,000
New Mexico	100,000	100,000	200,000
New York	100,000	100,000	200,000
North Carolina	100,000	100,000	200,000
North Dakota	100,000	100,000	200,000
Ohio	100,000	100,000	200,000
Oklahoma	100,000	100,000	200,000
Oregon	100,000	100,000	200,000
Pennsylvania	100,000	100,000	200,000
Rhode Island	100,000	100,000	200,000
South Carolina	100,000	100,000	200,000
South Dakota	100,000	100,000	200,000
Tennessee	100,000	100,000	200,000
Texas	100,000	100,000	200,000
Utah	100,000	100,000	200,000
Vermont	100,000	100,000	200,000
Virginia	100,000	100,000	200,000
Washington	100,000	100,000	200,000
West Virginia	100,000	100,000	200,000
Wisconsin	100,000	100,000	200,000
Wyoming	100,000	100,000	200,000
Total	100,000	100,000	200,000

TOTAL STATE AND FEDERAL EXPENDITURES ON ALL

COOPERATIVE ELECTRIC RUST CONTROL WORK

IN NORTHEASTERN STATES

STATE AND FEDERAL COOPERATIVE BLISTER RUST CONTROL FUNDS USED FOR ALL
PROJECTS IN NORTHEASTERN STATES DURING CALENDAR YEAR 1934

Table 78.- Source of Total State Funds Expended in Various
Northeastern States During Calendar Year 1934

Funds	State Blister Rust Appropriations	Nursery Funds	Town Funds	Individual Funds or Labor	County Funds	All Other Coop. State Funds	Total State Funds
Maine	\$ 4,879.49	\$ 500.00	\$ 549.93	\$ 111.09	-	\$ -	\$ 6,040.51
N. H.	7,568.91	-	2,100.00	-	-	10,132.72	19,801.63
Vt.	2,660.90	-	-	-	-	-	2,660.90
Mass.	3,169.09	674.24	-	4814.75	-	-	8,658.08
R. I.	3,729.69	-	-	-	-	-	3,729.69
Conn.	5,736.33	-	1,924.00	29.40	-	-	7,689.73
N. Y.	46,940.66	-	-	3545.64	881.35	5,872.88	57,240.53
N. J.	2,020.68	-	-	-	-	9.60	2,030.28
Penna.	8,871.65	-	-	186.80	-	9.60	9,068.05
Totals	\$85,577.40	\$1,174.24	\$4,573.93	\$8687.68	881.35	\$16,024.80	\$116,919.40

Table 79.- Percentage of Total State Funds in Respective States
Derived From Various Sources

Funds	State Blister Rust Appropriations	Nursery Funds	Town Funds	Individual Funds or Labor	County Funds	All Other Coop. State Funds	Total State Funds
Maine	80.8	8.3	9.1	1.8	-	-	100.0
N. H.	38.2	-	10.6	-	-	51.2	100.0
Vt.	100.0	-	-	-	-	-	100.0
Mass.	36.6	7.8	-	55.6	-	-	100.0
R. I.	100.00	-	-	-	-	-	100.0
Conn.	74.6	-	25.0	0.4	-	-	100.0
N. Y.	82.0	-	-	6.2	1.5	10.3	100.0
N. J.	99.5	-	-	-	-	0.5	100.0
Penna.	97.8	-	-	2.1	-	0.1	100.0
Totals	73.2	1.0	3.9	7.4	0.8	13.7	100.0

STATE AND FEDERAL COOPERATIVE LISTED BUSH CONTROL FUNDS USED FOR ALL
PROJECTS IN NORTHEASTERN STATES DURING CALENDAR YEAR 1934

Table 18. - Source of Total State Funds Expended in Various
Northeastern States During Calendar Year 1934

State	State Appropriations	Nursery Funds	Town Funds	Individual Funds or Labor	County Funds	All Other Coop. State Funds	Total State Funds
Ala.	\$ 4,879.49	\$ 500.00	\$ 549.91	\$ 111.09	-	-	\$ 6,040.49
Ariz.	7,568.91	-	2,100.00	-	-	10,132.75	29,801.66
Cal.	2,660.90	-	-	-	-	-	2,660.90
Col.	3,169.09	674.24	-	1414.75	-	-	5,658.08
Conn.	3,129.69	-	-	-	-	-	3,129.69
Del.	2,736.73	-	1,324.00	29.40	-	-	4,090.13
Fla.	46,940.66	-	-	3545.64	881.75	5,875.68	57,643.73
Ill.	2,090.68	-	-	-	-	9.60	2,090.28
Ind.	3,371.65	-	-	186.80	-	9.60	3,568.05
Iowa	\$28,277.40	\$1,174.64	\$4,273.93	\$687.68	881.75	\$16,054.80	\$41,619.40

Table 19. - Percentage of Total State Funds in Respective States
Derived from Various Sources

State	State Appropriations	Nursery Funds	Town Funds	Individual Funds or Labor	County Funds	All Other Coop. State Funds	Total State Funds
Ala.	80.8	8.3	9.1	1.8	-	-	100.0
Ariz.	38.2	-	10.6	-	-	51.2	100.0
Cal.	100.0	-	-	-	-	-	100.0
Col.	36.6	1.8	-	22.6	-	-	100.0
Conn.	100.00	-	-	-	-	-	100.0
Del.	74.6	-	25.0	0.4	-	-	100.0
Fla.	82.0	-	-	6.8	1.5	10.7	100.0
Ill.	99.5	-	-	-	-	0.5	100.0
Ind.	97.8	-	-	5.1	-	0.1	100.0
Iowa	73.2	1.0	3.9	1.4	0.8	13.7	100.0

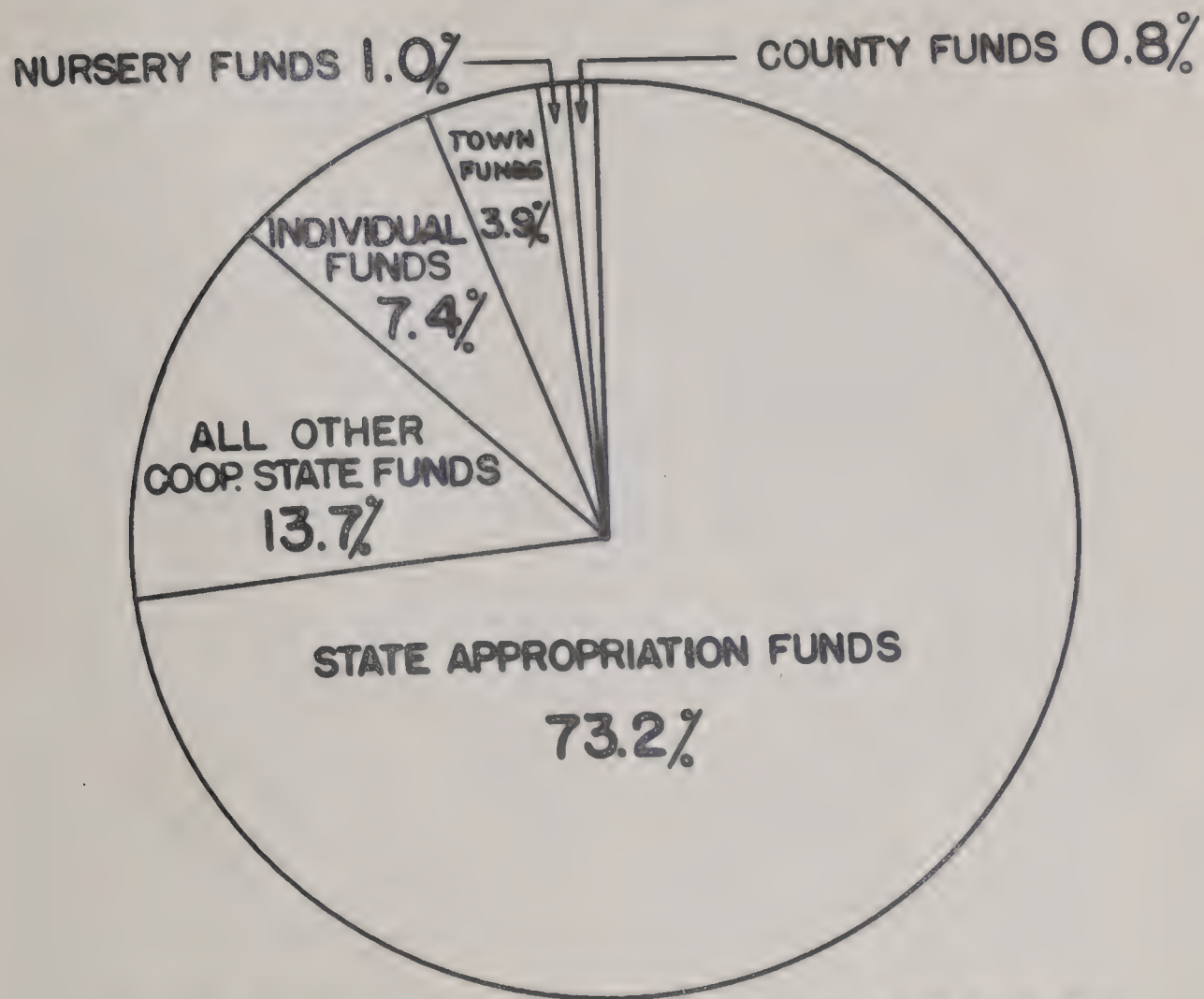
Table 80.- Total State and Federal Expenditures in Northeastern States
During Calendar Year 1934.

State	Total State Expenditures	Federal Expenditures						Total State and Federal Expenditures	% Total State Expenditures Derived From Federal Funds
		B. P. I.	P. W. A.	E. C. W.	C. W. A.	E. R. A. and C. P. A.	Total		
Maine	6,040.51	3,073.24	45,546.74	47,050.48	-	1,426.80	97,097.26	103,137.77	94.1
N. H.	19,801.63	4,441.81	39,699.45	28,484.02	-	-	72,625.28	92,426.91	78.6
Vt.	2,660.90	1,374.78	16,717.22	21,256.00	-	-	39,348.00	42,008.90	93.7
Mass.	8,658.08	3,180.12	28,990.94	10,084.70	31,134.08	-	73,389.84	82,047.92	89.4
R. I.	3,729.69	315.00	7,904.64	13,521.59	-	-	21,741.23	25,470.92	85.4
Conn.	7,689.73	2,190.01	12,052.34	28,243.20	5,938.10	30,925.25	79,348.90	87,038.63	91.2
N. Y.	57,240.53	1,069.03	52,432.85	131,308.88	-	1,338.37	186,149.13	243,389.66	76.5
N. J.	2,030.28	-	1,602.25	346.50	-	-	1,948.75	3,979.03	49.0
Penn.	9,068.05	27.33	31,934.59	104,447.47	-	-	136,409.39	145,477.44	93.8
Totals	116,919.40	15,671.32	236,881.02	384,742.84	37,072.18	33,690.42	708,057.78	824,977.18	85.8

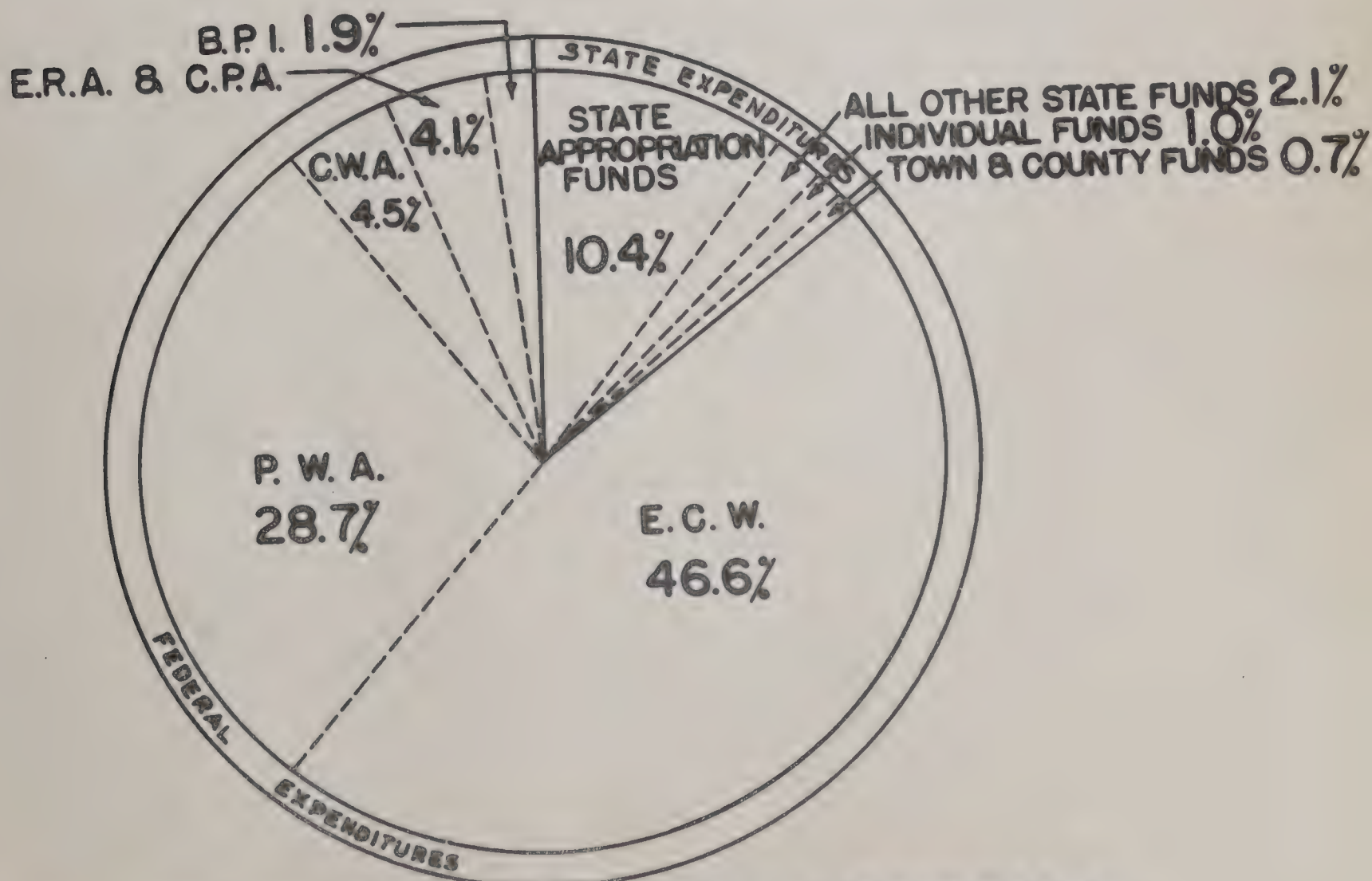
Statement of Actual Income Taxable Due State Lot - 08 21st
1991 Year Taxable Gain

State Lot & Description	Actual Income Taxable Due	Actual Income Taxable						Actual State	Actual
		Lot	A. N. T Dns	A. N. D	N. O. T	A. W. T	I. T. E		
1. HP	TT, TFI, FOL	38, 190, 19	08, 384, 1	-	24, 030, 14	47, 345, 34	45, 170, 1	12, 040, 2	21.47
2. 2Y	19, 384, 39	38, 382, 57	-	-	30, 434, 35	24, 692, 97	18, 144, 11	12, 103, 91	1.17
1. FP	02, 800, 50	00, 847, 67	-	-	00, 325, 18	55, 147, 31	27, 477, 1	09, 022, 5	1.47
11. 25	59, 140, 58	45, 937, 17	-	20, 471, 17	07, 480, 01	49, 009, 28	51, 081, 1	80, 322, 3	1.56
11. 28	59, 074, 23	75, 147, 13	-	-	22, 132, 11	42, 409, 1	00, 247	22, 957, 1	1.17
5. 42	12, 270, 18	09, 347, 97	75, 259, 07	01, 879, 2	05, 745, 35	47, 570, 31	10, 091, 3	17, 922, 1	1.00
2. 2Y	30, 987, 745	71, 944, 387	77, 377, 1	-	38, 807, 177	38, 874, 92	70, 920, 1	12, 045, 72	1.17
0. 24	10, 979, 1	27, 340, 1	-	-	07, 247	25, 502, 1	-	35, 070, 5	1.17
3. 22	44, 174, 241	07, 904, 217	-	-	74, 744, 401	92, 479, 17	77, 75	70, 820, 2	1.00
5. 28	31, 179, 453	27, 720, 307	34, 092, 17	21, 570, 17	49, 947, 487	50, 183, 375	57, 772, 21	04, 919, 217	1.00

PERCENTAGE TOTAL BLISTER RUST CONTROL EXPENDITURES IN NORTHEASTERN STATES DURING CALENDAR YEAR 1934 PAID BY VARIOUS COOPERATING AGENCIES



TOTAL STATE EXPENDITURES = \$116,919.40



TOTAL STATE AND FEDERAL EXPENDITURES = \$824,977.18

EXPLANATION OF STATE AND FEDERAL EXPENDITURES FOR VARIOUS BLISTER RUST
CONTROL PROJECTS IN NORTHEASTERN STATES DURING THE CALENDAR YEAR 1934

(Basis for project costs)

General Supervision

State Expenditures

Maine and Massachusetts: Expenses of state leaders - general office expenses.
New Hampshire: Upkeep and maintenance of state car (except gas and oil) for state leader - state salary of permanent clerk - general office expenses.
Vermont: Salary of Assistant State Forester Lockard for time spent on supervision of blister rust control activities.
Rhode Island: One-fourth of expenses paid by state to leader - arbitrary charge of \$25.00 per month for clerical assistance at Providence Office - part of Agent White's salary and expenses.
Connecticut: Expenses of State Cooperator Filley and salary of Assistant Station Forester Hickock for time spent on blister rust control work - arbitrary charge of \$55.00 per month for salary of stenographer at New Haven Office - salary of temporary assistant at New Haven Office.
New York: Salary and expenses of state leader McIntyre during entire year are not charged against blister rust control activities.
New Jersey: One-fourth of state leader's state salary and expenses during the entire year.
Pennsylvania: Arbitrary charge of \$47.50 per month for stenographic assistance at Harrisburg Office - general expenses at office.

B.P.I. Expenditures (January 1 to June 30, 1934 only)

Maine: Salary of state leader January 1 to June 30 and part of his expenses.
New Hampshire and Massachusetts: Salaries of state leaders during May and June - part of Newman's expenses - part salary of permanent clerk at each state office during May and June.
Rhode Island: One-fourth of state leader's salary during May and June.
Connecticut: One-fourth of state leader's salary during January 1 to June 30.

P.W.A. Expenditures

Maine: State leader's salary during July 1 to December 31, and part of his expenses during year.
New Hampshire and Massachusetts: State leaders' salary from January 1 to April 30 and from July 1 to December 31 - part of salary of permanent clerk at each office for same period - part of Newman's expenses.
Rhode Island: One-fourth of state leader's salary from January 1 to April 30 and from July 1 to December 31.
Connecticut: One-fourth of state leader's salary from July 1 to December 31 - one-fourth of state leader's expenses during entire year.
New Jersey: One-fourth of state leader's federal salary during year.
Pennsylvania: One-fourth of state leader's salary and expenses during year.

EXPLANATION OF STATE AND FEDERAL EXPENDITURES FOR VARIOUS BLISTER BUST CONTROL PROJECTS IN NORTHEASTERN STATES DURING THE CALENDAR YEAR 1934

(Basis for project costs)

General Supervision

State Expenditures

Maine and Massachusetts: Expenses of state leaders - general office expenses.
New Hampshire: Upkeep and maintenance of state car (except gas and oil) for
state leader - state salary of permanent clerk - general office expenses.
Vermont: Salary of Assistant State Forester Lockard for time spent on super-
vision of blister rust control activities.
Rhode Island: One-fourth of expenses paid by state to leader - arbitrary charge
of \$25.00 per month for clerical assistance at Providence Office - part of
Agent White's salary and expenses.
Connecticut: Expenses of State Cooperator Tilley and salary of Assistant Station
Forester Hickock for time spent on blister rust control work - arbitrary
charge of \$25.00 per month for salary of stenographer at New Haven Office -
salary of temporary assistant at New Haven Office.
New York: Salary and expenses of state leader McIntyre during entire year are not
charged against blister rust control activities.
New Jersey: One-fourth of state leader's state salary and expenses during the en-
tire year.
Pennsylvania: Arbitrary charge of \$47.50 per month for stenographic assistance
at Harrisburg Office - general expenses at office.

B.P.I. Expenditures (January 1 to June 30, 1934 only)

Maine: Salary of state leader January 1 to June 30 and part of his expenses.
New Hampshire and Massachusetts: Salaries of state leaders during May and June -
part of Newman's expenses - part salary of permanent clerk at each state
office during May and June.
Rhode Island: One-fourth of state leader's salary during May and June.
Connecticut: One-fourth of state leader's salary during January 1 to June 30.

P.W.A. Expenditures

Maine: State leader's salary during July 1 to December 31, and part of his ex-
penses during year.
New Hampshire and Massachusetts: State leader's salary from January 1 to April 30
and from July 1 to December 31 - part of salary of permanent clerk at each
office for same period - part of Newman's expenses.
Rhode Island: One-fourth of state leader's salary from January 1 to April 30 and
from July 1 to December 31.
Connecticut: One-fourth of state leader's salary from July 1 to December 31 -
one-fourth of state leader's expenses during entire year.
New Jersey: One-fourth of state leader's federal salary during year.
Pennsylvania: One-fourth of state leader's salary and expenses during year.

Blister Rust Control Agent Activities

State Expenditures

All States: Cost of educational material purchased for use of district agents.
New Hampshire: Rental of office space for Agent Richardson.
Vermont: Part of agents' expenses.
Rhode Island: Three-quarters of state leader's expenses - part of Agent White's salary.
Connecticut: Salaries of temporary agents.
New York: Agent Nichols' expenses.
New Jersey: Three-fourths of state leader's state salary and expenses during year.
Pennsylvania: Cost of Agent May and other temporary agents.

B.F.I. Expenditures (January 1 to June 30, 1934 only)

All States (except New York and Pennsylvania): Salaries of permanent district agents during May and June.
New Hampshire: Cost of new automobiles purchased for Agents Baker, Kane, Richardson, and Swain.
Vermont: Cost of new car purchased for Agent Rose.
Massachusetts: Cost of new automobile purchased for Agents Brockway and Wheeler.
Rhode Island: Three-quarters of state leader's salary during May and June.
Connecticut: Transportation expenses of E.R.A. foremen - three-fourths of state leader's salary January 1 to June 30.
New York: Cost of new automobiles purchased for Agents Barber, Kresge and Strait.
Pennsylvania: Miscellaneous expenses.

P.W.A. Expenditures

All States (except New York and Pennsylvania): Salaries of permanent district agents from January 1 to April 30 and from July 1 to December 31 - expenses of agents during entire year except Agents Boomer and Swain in New Hampshire.
Rhode Island: Three-quarters of state leader's salary during January 1 to April 30 and from July 1 to December 31.
Connecticut: Three-quarters of state leader's salary from July 1 to December 31 and expenses during entire year.
New York: Salaries of all permanent agents and their expenses (except Nichols) during entire year.
New Jersey: Three-fourths of state leader's federal salary during entire year.
Pennsylvania: Three-fourths of state leader's salary and expenses during entire year - salary and expenses of Agent DeBerti during the year.

Ribes Eradication - Other Than Nursery Sanitation and Black Currant Elimination

State Expenditures

All States: Wages of owners' labor and state labor, state linemen, scouts, and foremen employed in locating and pulling Ribes - transportation of crews, and miscellaneous expenses for trail paper, picks, etc.

State Expenditures

All States: Wages of owners, labor and state labor, state linemen, accounts, and foremen employed in locating and pulling lines - transportation of crews, and miscellaneous expenses for trail payers, picks, etc.

Ribes eradication - Other than Nursery Sanitation and Ribes Current Elimination

Year - salary and expenses of Agent DeBert during the year.

Pennsylvania: Three-fourths of state leader's salary and expenses during entire year.

New Jersey: Three-fourths of state leader's federal salary during entire year.

New York: Salaries of all permanent agents and their expenses (except Nichols) during entire year.

Connecticut: Three-fourths of state leader's salary from July 1 to December 31 and from July 1 to December 31.

Rhode Island: Three-fourths of state leader's salary during January 1 to April 30 and during entire year except Agents Boomer and Swain in New Hampshire.

Agents from January 1 to April 30 and from July 1 to December 31 - expenses

All States (except New York and Pennsylvania): Salaries of permanent districts

Pennsylvania: Miscellaneous expenses.

New York: Cost of new automobiles purchased for Agents Barber, Kresge and Strait.

Leader's salary January 1 to June 30.

Connecticut: Transportation expenses of R.E.A. foremen - three-fourths of state

Rhode Island: Three-fourths of state leader's salary during May and June.

Massachusetts: Cost of new automobile purchased for Agents Brockway and Wheeler.

Vermont: Cost of new car purchased for Agent Host.

New Hampshire: Cost of new automobiles purchased for Agents Baker, Kane, Richards-son, and Swain.

All States (except New York and Pennsylvania): Salaries of permanent districts

agents during May and June.

New Jersey: Three-fourths of state leader's salary and expenses during

New York: Agent Nichols' expenses.

Connecticut: Salaries of temporary agents.

Rhode Island: Three-fourths of state leader's expenses - part of Agent White's salary.

Vermont: Part of agents' expenses.

New Hampshire: Rental of office space for Agent Richardson.

All States: Cost of educational material purchased for use of district agents.

State Expenditures

Blister Rust Control Agent Activities

P.W.A. Expenditures

All States: Wages of laborers, straw bosses, scouts, and foremen employed in locating and pulling Ribes - transportation of crews and miscellaneous expenses for trail paper, picks, etc.

E.C.W. Expenditures

All States: Cost of enlisted personnel's time on Ribes eradication work figured at rate of \$1.40 per eight hour man day - cost of transportation, when actual cost not available, figured at rate of \$40.00 per month for each truck, plus 3¢ per mile for operating costs - none of technical foremen's time charged against Ribes eradication.

E.R.A. Expenditures

Maine, Connecticut and New York: Cost of laborers, straw bosses and foremen employed in locating and pulling Ribes - crew transportation.

Nursery Sanitation

State Expenditures

All States: Cost of crews employed in locating and pulling Ribes in nursery sanitation zones - expenditure in Maine includes allotment of \$500.00 for general nursery inspection, and in Massachusetts \$220.60 for inspection of white pines in nurseries.

P.W.A. Expenditures

Maine, Massachusetts, Rhode Island, Connecticut and New York: Cost of P.W.A. crews employed in locating and pulling Ribes in nursery sanitation zones.

E.C.W. Expenditures

Vermont, Connecticut and Pennsylvania: Cost of E.C.W. enlisted personnel employed in locating and pulling Ribes in nursery sanitation zones figured at rate of \$1.40 per eight hour man day - cost of crew transportation.

Black Currant Elimination

State Expenditures

Massachusetts, Connecticut, and New York: Wages and expenses paid to state men engaged in locating and pulling Ribes nigrum when such work was conducted as special project.

E. W. A. Expenditures

All States: Cost of laborers, straw bales, tools, and various supplies in locating and pulling Ribes - transportation of crews and miscellaneous expenses for trail paper, picks, etc.

E. C. W. Expenditures

All States: Cost of enlisted personnel's time in Ribes eradication work figured at rate of \$1.40 per eight hour man day - cost of transportation, when actual cost not available, figured at rate of \$40.00 per month for each truck, plus 1/4 per mile for operating costs - none of technical foreman's time charged against Ribes eradication.

E. W. A. Expenditures

Maine, Connecticut and New York: Cost of laborers, straw bales and foremen employed in locating and pulling Ribes - tree transportation.

Nursery Expenditures

State Expenditures

All States: Cost of crews employed in locating and pulling Ribes in nursery eradication work - expenditure in Maine includes amount of \$500.00 for general nursery inspection, and in Massachusetts \$250.00 for inspection of white pines in nurseries.

E. W. A. Expenditures

Maine, Massachusetts, Rhode Island, Connecticut and New York: Cost of E. W. A. crews employed in locating and pulling Ribes in nursery eradication work.

E. C. W. Expenditures

Vermont, Connecticut and Pennsylvania: Cost of E. C. W. enlisted personnel employed in locating and pulling Ribes in nursery eradication work figured at rate of \$1.40 per eight hour man day - cost of crew transportation.

Black Current Eradication

State Expenditures

Massachusetts, Connecticut, and New York: Names and expenses paid to state men engaged in locating and pulling Ribes along state and territory roadways as special project.

P.W.A. Expenditures

Massachusetts, Connecticut and New York: Wages and expenses of P.W.A. personnel employed on special Ribes elimination projects.

E.C.W. Expenditures

Connecticut: Wages of E.C.W. enlisted personnel used on special black currant elimination work - figured at rate of \$1.40 per eight hour man day.

C.W.A. Expenditures

Massachusetts and Connecticut: Wages and expenses of C.W.A. personnel employed on Ribes nigrum location work during winter months.

E.R.A. and C.P.A. Expenditures

Connecticut: Wages and expenses of E.R.A. and C.P.A. personnel employed on Ribes nigrum elimination project in Connecticut.

Supervision of Ribes Eradication

State Expenditures

New Hampshire, Connecticut, New York and Pennsylvania: Wages of technical foremen supplied by state for E.C.W. Ribes eradication projects - miscellaneous expenses in Connecticut.

P.W.A. Expenditures

Connecticut and New York: Cost of supervisors of P.W.A. Ribes eradication crews. Cost of detailed and detail work.

E.C.W. Expenditures

All States except New Jersey: Wages and expenses of E.C.W. technical foremen and checkers' time supervising Ribes eradication work.

C.W.A. Expenditures

Massachusetts: Cost of supervisors for Ribes nigrum location work and treatment of diseased pines project under C.W.A. Program.

F.W.A. Expenditures

Massachusetts, Connecticut and New York: Wages and expenses of F.W.A. personnel employed on special Ribes eradication projects.

E.C.W. Expenditures

Connecticut: Wages of E.C.W. enlisted personnel used on special black currant eradication work - figured at rate of \$1.10 per eight hour man day.

C.W.A. Expenditures

Massachusetts and Connecticut: Wages and expenses of C.W.A. personnel employed on Ribes nigra location work during winter months.

F.W.A. and C.F.A. Expenditures

Connecticut: Wages and expenses of F.W.A. and C.F.A. personnel employed on Ribes nigra eradication project in Connecticut.

Supervision of Ribes Eradication

State Expenditures

New Hampshire, Connecticut, New York and Pennsylvania: Wages of technical foremen supplied by state for E.C.W. Ribes eradication projects - miscellaneous expenses in Connecticut.

F.W.A. Expenditures

Connecticut and New York: Cost of supervisors of F.W.A. Ribes eradication crews.

E.C.W. Expenditures

All States except New Jersey: Wages and expenses of E.C.W. technical foremen and checkers' time supervising Ribes eradication work.

C.W.A. Expenditures

Massachusetts: Cost of supervisors for Ribes nigra location work and treatment of diseased pine project under C.W.A. program.

Ribes Compensation

State Expenditures

Massachusetts and New York: Compensation paid by states to owners of cultivated Ribes destroyed in connection with control work.

Treatment of Diseased Pines

E.C.W. Expenditures

Maine and Pennsylvania: Cost of enlisted personnel and foremen employed on such projects at Acadia National Park in Maine and on state plantations in Pennsylvania.

C.W.A. Expenditures

Massachusetts: Cost of C.W.A. personnel employed on treatment of diseased pines on municipally owned lands in Massachusetts - cost of equipment used on such work.

Field Data

State Expenditures

Maine: Cost of state men used on special field studies and mapping work - cost of preparing enlarged maps for pine mapping work.

New Hampshire, Vermont, Rhode Island, and Connecticut: Cost of state men employed on pine and control area mapping.

New York: Cost of Littlefield and Snell and their assistants on investigation-al work - state expenditures for pine and control area mapping.

P.W.A. Expenditures

All States except New Jersey: Expenditures for temporary agents on pine and control area mapping project.

E.C.W. Expenditures

Maine, New Hampshire, Vermont, Rhode Island, and Pennsylvania: Cost of E.C.W. checkers employed on pine and control area mapping project.

Pine Compensation

State Expenditures

Massachusetts and New York: Compensation paid by states to owners of cultivated pine destroyed in connection with control work.

Treatment of Diseased Pines

E.C.W. Expenditures

Maine and Pennsylvania: Cost of enlisted personnel and foremen employed on such projects at Acadia National Park in Maine and on state plantations in Pennsylvania.

E.W.A. Expenditures

Massachusetts: Cost of E.W.A. personnel employed on treatment of diseased pines on municipally owned lands in Massachusetts - cost of equipment used on such work.

Field Data

State Expenditures

Maine: Cost of state men used on special field studies and mapping work - cost of preparing enlarged maps for pine mapping work.

New Hampshire, Vermont, Rhode Island, and Connecticut: Cost of state men employed on pine and control area mapping.

New York: Cost of Littlefield and Shell and their assistants on investigation - all work - state expenditures for pine and control area mapping.

E.W.A. Expenditures

All States except New Jersey: Expenditures for temporary agents on pine and control area mapping project.

E.C.W. Expenditures

Maine, New Hampshire, Vermont, Rhode Island, and Pennsylvania: Cost of E.C.W. checkers employed on pine and control area mapping project.

C.W.A. Expenditures

Massachusetts: Cost of C.W.A. employees on pine and control area mapping project.

E.R.A. & C.F.A. Expenditures

Connecticut: Cost of E.R.A. and C.F.A. employees on pine and control area mapping project.

Table No.	Project Name	Project No.	Project Description	Project Status	Project Location	Project Dates	Project Budget	Project Actuals	Project Variance
1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9	9
10	10	10	10	10	10	10	10	10	10
11	11	11	11	11	11	11	11	11	11
12	12	12	12	12	12	12	12	12	12
13	13	13	13	13	13	13	13	13	13
14	14	14	14	14	14	14	14	14	14
15	15	15	15	15	15	15	15	15	15
16	16	16	16	16	16	16	16	16	16
17	17	17	17	17	17	17	17	17	17
18	18	18	18	18	18	18	18	18	18
19	19	19	19	19	19	19	19	19	19
20	20	20	20	20	20	20	20	20	20
21	21	21	21	21	21	21	21	21	21
22	22	22	22	22	22	22	22	22	22
23	23	23	23	23	23	23	23	23	23
24	24	24	24	24	24	24	24	24	24
25	25	25	25	25	25	25	25	25	25
26	26	26	26	26	26	26	26	26	26
27	27	27	27	27	27	27	27	27	27
28	28	28	28	28	28	28	28	28	28
29	29	29	29	29	29	29	29	29	29
30	30	30	30	30	30	30	30	30	30
31	31	31	31	31	31	31	31	31	31
32	32	32	32	32	32	32	32	32	32
33	33	33	33	33	33	33	33	33	33
34	34	34	34	34	34	34	34	34	34
35	35	35	35	35	35	35	35	35	35
36	36	36	36	36	36	36	36	36	36
37	37	37	37	37	37	37	37	37	37
38	38	38	38	38	38	38	38	38	38
39	39	39	39	39	39	39	39	39	39
40	40	40	40	40	40	40	40	40	40
41	41	41	41	41	41	41	41	41	41
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99	99	99	99	99	99	99	99	99	99
100	100	100	100	100	100	100	100	100	100

Table No. 1 - Summary of Military and Air Force Expenditures for the Year 1964

- (1) Other than military and air force expenditures.
- (2) Includes Air Force of 1964. For military expenditures see table in 1964 report.
- (3) Includes Air Force of 1964. For military expenditures see table in 1964 report.

C.F.A. Expenditures

Massachusetts: Cost of C.F.A. employees on line and control area mapping project.

N.H.A. & C.F.A. Expenditures

Connecticut: Cost of N.H.A. and C.F.A. employees on line and control area mapping project.

Summary of Expenditures

Amount paid in 1964 for this project is

Amount paid in 1964 for this project is

Summary

Amount paid in 1964 for this project is

Amount paid in 1964 for this project is

Amount paid in 1964 for this project is

Amount paid in 1964 for this project is

Amount paid in 1964 for this project is

Table 81.- Total State Expenditures During The Calendar Year 1934
For The Various Blister Rust Control Projects In The Respective Northeastern States

State	Supervision	B.R.C. Agent Activities	Ribes Erad.(1)	Nursery Sanitation	Black Currant Erad.	Supervision of Ribes Erad.	Ribes Comp.	Treatment Diseased Pines	Field Data	Totals
Maine	1200.93	43.72	3,243.97	602.33(2)	-	-	-	-	949.56	6,040.51
N. H.	1476.91	212.06	15,194.96	168.00	-	822.15	-	-	1,927.55	19,801.63
Vt.	575.00	21.00	20.00	417.90	-	971.50	-	-	655.50	2,660.90
Mass.	367.44	16.38	5,627.10	331.60(3)	2068.11	-	247.45	-	-	8,658.08
R. I.	1874.51	1155.00	275.54	6.00	-	-	-	-	418.64	3,729.69
Conn.	1679.01	1368.47	2,992.56	43.35	1349.53	.66	-	-	256.15	7,689.73
N. Y.	-	385.53	34,384.64	1220.99	1042.81	11,451.52	123.05	-	8,631.99	57,240.53
N. J.	493.86	1481.59	45.23	9.60	-	-	-	-	-	2,030.28
Penna.	778.96	4009.67	3,420.62	577.60	-	281.20	-	-	-	9,068.05
Totals	8446.62	8693.42	65,204.62	3377.37	4460.45	13,527.03	370.50	-	12,839.39	116,919.40

Table 82.- Percentage of Total State Expenditures in Respective
Northeastern States Paid For Each Project

State	Supervision	B.R.C. Agent Activities	Ribes Erad.	Nursery Sanitation	Black Currant Erad.	Supervision of Ribes Erad.	Ribes Comp.	Treatment Diseased Pines	Field Data	Totals
Maine	19.9	0.7	53.7	10.0	-	-	-	-	15.7	100.0
N. H.	7.5	1.1	76.7	0.8	-	4.2	-	-	9.7	100.0
Vt.	21.6	0.8	0.8	15.7	-	36.5	-	-	24.6	100.0
Mass.	4.2	0.2	65.0	3.8	23.9	-	2.9	-	-	100.0
R. I.	50.2	31.0	7.4	0.2	-	-	-	-	11.2	100.0
Conn.	21.8	17.8	38.9	0.6	17.6	-	-	-	3.3	100.0
N. Y.	-	0.7	60.1	2.1	1.8	20.0	0.2	-	15.1	100.0
N. J.	24.3	73.0	2.2	0.5	-	-	-	-	-	100.0
Penna.	8.6	44.2	37.7	6.4	-	3.1	-	-	-	100.0
Totals	7.2	7.4	55.8	2.9	3.8	11.6	0.3	-	11.0	100.0

- (1) Other than nursery sanitation and black currant eradication.
(2) Includes item of \$500. for nursery inspection work which is not charged in summaries of nursery sanitation work.
(3) Includes item of \$220.60 for pine inspection work which is not charged in nursery sanitation summaries.

Table 83.-Total B.F.I. Expenditures During The Calendar Year 1934
For The Various Blister Rust Control Projects In The Northeastern States

State	Supervision	B.R.C. Agent Activities	Total
Maine	1,723.24	1,350.00	3,073.24
N. H.	516.12	3,925.69	4,441.81
Vt.	-	1,374.78	1,374.78
Mass.	540.00	2,640.12	3,180.12
R. I.	78.00	237.00	315.00
Conn.	367.80	1,822.21	2,190.01
N. Y.	-	1,069.03	1,069.03
N. J.	-	-	-
Penna.	-	27.33	27.33
Totals	3,225.16	12,446.16	15,671.32

Table 84.- Percentage of Total B.F.I. Expenditures In Respective
Northeastern States Paid For Each Project

State	Supervision	B.R.C. Agent Activities	Total
Maine	56.1	43.9	100.0
N. H.	11.6	88.4	100.0
Vt.	-	100.0	100.0
Mass.	17.0	83.0	100.0
R. I.	24.8	75.2	100.0
Conn.	16.8	83.2	100.0
N. Y.	-	100.0	100.0
N. J.	-	-	-
Penna.	-	100.0	100.0
Totals	20.6	79.4	100.0

Table 68. - Total E.F.I. Expenditures During The Calendar Year 1974
For The Various Winter Hunt Control Projects In The Northeastern States

State	Supervision	E.F.I. Agent Activities	Total
Maine	1,753.24	1,350.00	3,103.24
N. H.	710.12	1,922.69	2,632.81
Vt.	-	1,174.78	1,174.78
Mass.	240.00	2,640.12	2,880.12
R. I.	78.00	237.00	315.00
Conn.	767.80	1,822.21	2,590.01
N. Y.	-	1,069.07	1,069.07
N. J.	-	-	-
Tenn.	-	27.75	27.75
Totals	3,252.16	12,446.12	15,698.28

Table 69. - Percentage of Total E.F.I. Expenditures In Respective
Northeastern States Paid For Each Project

State	Supervision	E.F.I. Agent Activities	Total
Maine	20.1	41.2	100.0
N. H.	11.6	88.4	100.0
Vt.	-	100.0	100.0
Mass.	17.0	83.0	100.0
R. I.	24.8	75.2	100.0
Conn.	16.8	83.2	100.0
N. Y.	-	100.0	100.0
N. J.	-	-	-
Tenn.	-	100.0	100.0
Totals	20.6	79.4	100.0

Table 85.- Total P.W.A. Expenditures During The Calendar Year 1934
For The Various Blister Rust Control Projects in The Northeastern States

State	Supervision	BRC Agent Activities	Ribes Erad. (1)	Nursery Sanitation	Black Currant Elimination	Supervision of Ribes Eradication	Field Data	Total
Maine	\$1,710.48	\$9,630.23	\$31,393.55	\$461.25	-	-	\$2,351.23	\$45,546.74
N. H.	2,872.11	12,994.41	19,976.00	-	-	-	3,856.93	39,699.45
Vt.	-	5,592.87	9,758.00	-	-	-	1,366.35	16,717.22
Mass.	2,954.30	11,475.28	12,346.69	195.34	550.04	-	1,469.29	28,990.94
R. I.	404.66	1,214.56	4,459.29	150.00	-	-	1,676.13	7,904.64
Conn.	574.00	1,825.18	5,892.54	611.25	1,002.79	895.43	1,251.15	12,052.34
N. Y.	-	25,114.29	17,858.40	1,964.00	31.50	870.75	6,593.91	52,432.85
N. J.	275.56	821.49	505.20	-	-	-	-	1,602.25
Penna.	648.22	4,674.89	25,966.98	-	-	-	644.50	31,934.59
Totals	\$9,439.33	\$73,343.20	\$128,156.65	\$3,381.84	\$1,584.33	\$1,766.18	\$19,209.49	\$236,881.02

Table 86.-Percentage of Total P.W.A. Expenditures in Respective
Northeastern States Paid For Each Project

State	Supervision	BRC Agent Activities	Ribes Erad. (1)	Nursery Sanitation	Black Currant Elimination	Supervision of Ribes Eradication	Field Data	Total
Maine	3.8	21.1	68.9	1.0	-	-	5.2	100.0
N. H.	7.2	32.8	50.3	-	-	-	9.7	100.0
Vt.	-	33.4	58.4	-	-	-	8.2	100.0
Mass.	10.2	39.6	42.6	0.7	1.9	-	5.0	100.0
R. I.	5.1	15.4	56.4	1.9	-	-	21.2	100.0
Conn.	4.8	15.1	48.9	5.1	8.3	7.4	10.4	100.0
N. Y.	-	47.9	34.0	3.7	0.1	1.7	12.6	100.0
N. J.	17.2	51.3	31.5	-	-	-	-	100.0
Penna.	2.0	14.7	81.3	-	-	-	2.0	100.0
Totals	4.0	30.9	54.1	1.4	0.7	0.8	8.1	100.0

(1) Other than nursery sanitation and special black currant elimination.

Table 87.- Total E.C.W. Expenditures During The Calendar Year 1934
For The Various Blister Rust Control Projects in The Northeastern States

State	Ribes (1) Eradication	Nursery Sanitation	Black Currant Elimination	Supervision of Ribes Erad.	Treatment Diseased Pines	Field Data	Totals
Maine	27,285.56	-	-	12,320.73	318.85	7,125.34	47,050.48
N. H.	17,208.70	-	-	7,532.22	-	3,743.10	28,484.02
Vt.	15,496.00	108.00	-	3,265.60	-	2,386.40	21,256.00
Mass.	7,792.40	-	-	2,292.30	-	-	10,084.70
R. I.	8,562.52	-	-	3,055.32	-	1,903.75	13,521.59
Conn.	20,298.18	261.92	218.40	7,464.70	-	-	28,243.20
N. Y.	96,053.48	-	-	35,255.40	-	-	131,308.88
N. J.	346.50	-	-	-	-	-	346.50
Penna.	70,474.02	492.20	-	16,804.70	1,385.00	15,291.55	104,447.47
Totals	263,517.36	862.12	218.40	87,990.97	1,703.85	30,450.14	384,742.84

Table 88.- Percentage of Total E.C.W. Expenditures in Respective
Northeastern States Paid For Each Project

State	Ribes (1) Eradication	Nursery Sanitation	Black Currant Elimination	Supervision of Ribes Erad.	Treatment Diseased Pines	Field Data	Totals
Maine	58.0	-	-	26.2	0.7	15.1	100.0
N. H.	60.4	-	-	26.5	-	13.1	100.0
Vt.	72.9	0.5	-	15.4	-	11.2	100.0
Mass.	77.3	-	-	22.7	-	-	100.0
R. I.	63.3	-	-	22.6	-	14.1	100.0
Conn.	71.9	0.9	0.8	26.4	-	-	100.0
N. Y.	73.2	-	-	26.8	-	-	100.0
N. J.	100.0	-	-	-	-	-	100.0
Penna.	67.5	0.5	-	16.1	1.3	14.6	100.0
Totals	68.5	0.2	0.1	22.9	0.4	7.9	100.0

(1) Other than nursery sanitation and special black currant elimination.

Table 87 - Total E.C.W. Expenditures During the Calendar Year 1944
for the Various Reforestation Projects in the Northeastern States

State	Ribes (1) Reforestation	Nursery Reforestation	Black Current Elimination	Supervision of Ribes Erad.	Treatment Diseased Pines	Yield Data	Totals
Ala.	27,282.25	-	-	15,250.75	318.25	1,152.74	43,843.99
Ariz.	17,208.70	-	-	7,252.22	-	2,743.10	27,203.92
Cal.	15,496.00	108.00	-	7,282.60	-	2,386.40	23,172.00
Col.	7,792.40	-	-	2,292.30	-	-	10,084.70
Conn.	8,282.25	-	-	3,022.32	-	1,907.72	12,212.29
Del.	20,298.18	261.22	218.40	7,464.70	-	-	28,042.50
Fla.	26,027.48	-	-	32,222.40	-	-	58,249.88
Idaho	346.20	-	-	-	-	-	346.20
Ill.	70,474.02	492.20	-	16,804.70	1,382.00	22,291.22	109,944.14
Iowa	267,617.76	862.12	218.40	47,990.27	1,707.22	40,420.14	358,017.86

Table 88 - Percentage of Total E.C.W. Expenditures in Respective
Northeastern States Paid for Each Project

State	Ribes (1) Reforestation	Nursery Reforestation	Black Current Elimination	Supervision of Ribes Erad.	Treatment Diseased Pines	Yield Data	Totals
Ala.	53.0	-	-	26.2	0.1	12.1	100.0
Ariz.	60.4	-	-	26.2	-	13.1	100.0
Cal.	75.3	0.2	-	12.4	-	11.2	100.0
Col.	77.2	-	-	22.7	-	-	100.0
Conn.	67.3	-	-	22.6	-	10.1	100.0
Del.	71.9	0.9	0.8	26.4	-	-	100.0
Fla.	77.2	-	-	26.2	-	-	100.0
Idaho	100.0	-	-	-	-	-	100.0
Ill.	67.2	0.2	-	16.1	1.2	14.3	100.0
Iowa	62.2	0.2	0.1	22.9	0.4	7.9	100.0

(1) Other than nursery reforestation and special black current elimination.

Table 89.-Total C.W.A. Expenditures During The Calendar Year 1934
For The Various Blister Rust Control Projects in The Northeastern States

State	Supervision of Erad.	Black Currant Elimination	Field Data	Treatment of Diseased Pines	Totals
Mass.	1,077.98	2,688.11	3,112.25	24,255.74	31,134.08
Conn.	-	5,938.10	-	-	5,938.10
Totals	1,077.98	8,626.21	3,112.25	24,255.74	37,072.18

Table 90.- Percentage of Total C.W.A. Expenditures in
Respective Northeastern States Paid For Each Project

State	Supervision of Erad.	Black Currant Elimination	Field Data	Treatment of Diseased Pines	Totals
Mass.	3.5	8.6	10.0	77.9	100.0
Conn.	-	100.0	-	-	100.0
Totals	2.9	23.3	8.4	65.4	100.0

Table 91.- Total E.R.A. and C.P.A. Expenditures During The Calendar Year 1934
For The Various Blister Rust Control Projects in The Northeastern States

State	Ribes Eradication (1)	Black Currant Elimination	Field Data	Totals
Maine	1,426.80	-	-	1,426.80
Conn.	4,905.15	24,238.20	1,781.90	30,925.25
N. Y.	1,338.37	-	-	1,338.37
Totals	7,670.32	24,238.20	1,781.90	33,690.42

Table 92.- Percentage of Total E.R.A. and C.P.A. Expenditures in Respective
Northeastern States Paid For Each Project

State	Ribes Eradication (1)	Black Currant Elimination	Field Data	Totals
Maine	100.0	-	-	100.0
Conn.	15.9	78.4	5.7	100.0
N. Y.	100.0	-	-	100.0
Totals	22.8	71.9	5.3	100.0

(1) Other than nursery sanitation and special black currant elimination.

Table 82 - Total C.V.A. Expenditures During The Calendar Year 1934
For The Various Bitter Root Control Projects in The Northeastern States

State	Suppression of Trees	Black Current Elimination	Field Data	Treatment of Diseased Pines	Totals
Mass.	1,077.95	2,848.11	2,112.25	24,252.74	31,134.08
Conn.	-	2,938.10	-	-	2,938.10
Totals	1,077.95	5,686.21	2,112.25	24,252.74	37,072.18

Table 80 - Percentage of Total C.V.A. Expenditures in
Respective Northeastern States Paid For Each Project

State	Suppression of Trees	Black Current Elimination	Field Data	Treatment of Diseased Pines	Totals
Mass.	2.9	8.6	10.0	77.9	100.0
Conn.	-	100.0	-	-	100.0
Totals	2.9	27.7	8.4	62.4	100.0

Table 81 - Total E.R.A. and C.P.A. Expenditures During The Calendar Year 1934
For The Various Bitter Root Control Projects in The Northeastern States

State	Riparian Erection (1)	Black Current Elimination	Field Data	Totals
Maine	1,426.80	-	-	1,426.80
Conn.	4,908.12	24,238.20	1,781.90	30,925.32
N. Y.	1,738.77	-	-	1,738.77
Totals	7,670.32	24,238.20	1,781.90	37,690.48

Table 83 - Percentage of Total E.R.A. and C.P.A. Expenditures in Respective
Northeastern States Paid For Each Project

State	Riparian Erection (1)	Black Current Elimination	Field Data	Totals
Maine	100.0	-	-	100.0
Conn.	12.9	78.4	2.7	100.0
N. Y.	100.0	-	-	100.0
Totals	22.8	71.9	2.7	100.0

(1) Other than nursery sanitation and special black current elimination.

Table 93.- Total State and Federal Expenditures During The Calendar Year 1934
For The Various Blister Rust Control Projects in The Respective Northeastern States

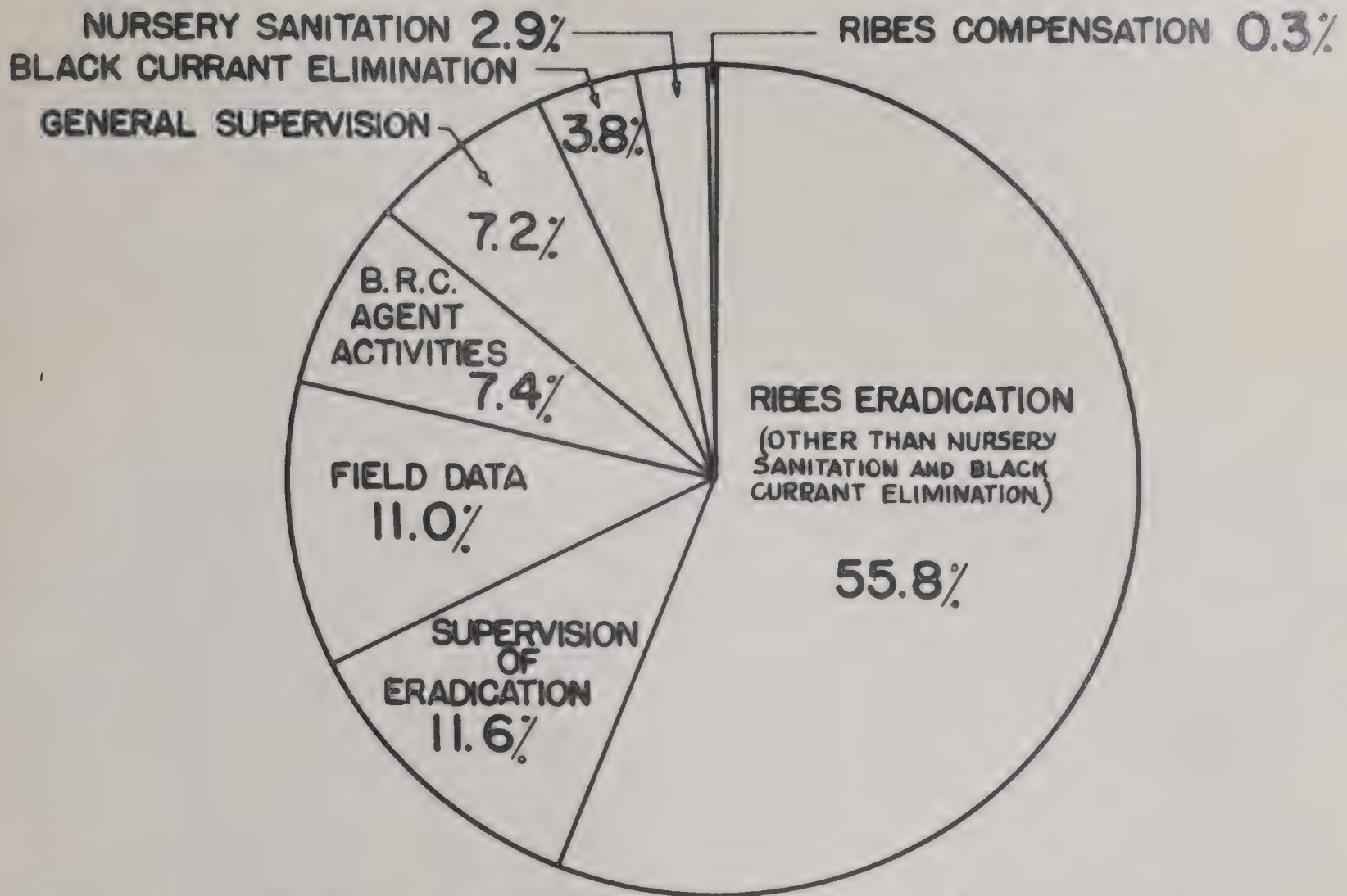
State	Supervision	BRC Agent Activities	Ribes Erad. (1)	Nursery Sanitation	Black Currant Erad.	Super-vision of Ribes Erad.	Ribes Comp.	Treatment Diseased Pines	Field Data	Total
Maine	4,634.65	11,023.95	63,349.88	1,063.58	-	12,320.73	-	318.85	10,426.13	103,137.77
N. H.	4,865.14	17,132.16	52,379.66	168.00	-	8,354.37	-	-	9,527.58	92,426.91
Vt.	575.00	6,988.65	25,274.00	525.90	-	4,237.10	-	-	4,408.25	42,008.90
Mass.	3,861.74	14,131.78	25,766.19	526.94	5,306.26	3,370.28	247.45	24,255.74	4,581.54	82,047.92
R. I.	2,357.17	2,606.56	13,297.35	156.00	-	3,055.32	-	-	3,998.52	25,470.92
Conn.	2,620.81	5,015.86	34,088.43	916.52	32,747.02	8,360.79	-	-	3,289.20	87,038.63
N. Y.	-	26,568.85	149,634.89	3,184.99	1,074.31	47,577.67	123.05	-	15,225.90	243,389.66
N. J.	769.42	2,303.08	896.93	9.60	-	-	-	-	-	3,979.03
Penna.	1,427.18	8,711.89	99,861.62	1,069.80	-	17,085.90	-	1,385.00	15,936.05	145,477.44
Totals	21,111.11	94,482.78	464,548.95	7,621.33	39,127.59	104,362.16	370.50	25,959.59	67,395.17	824,977.18

Table 94.- Percentage of Total State and Federal Expenditures in The
Respective Northeastern States Paid For Each Project

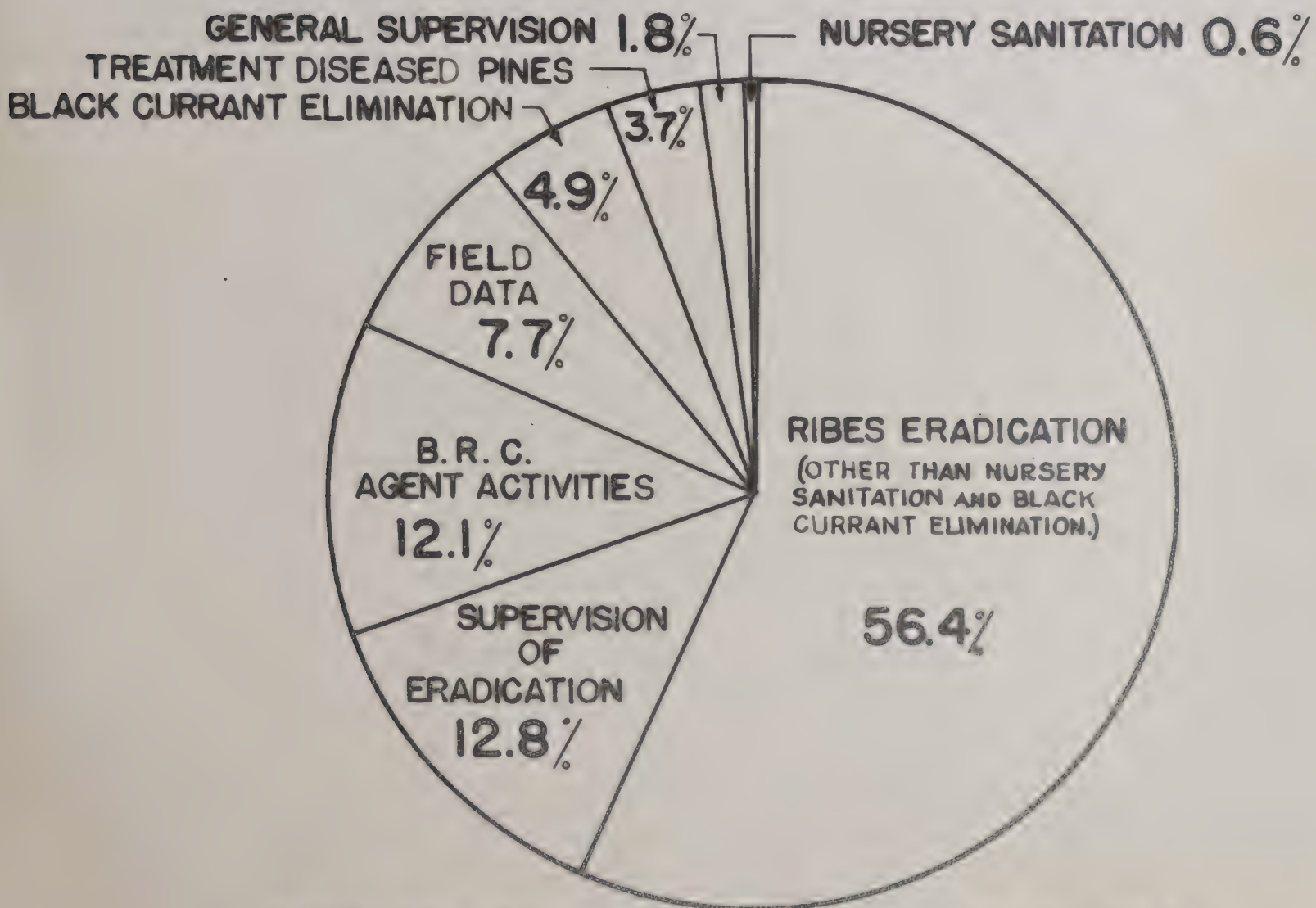
State	Supervision	BRC Agent Activities	Ribes Erad. (1)	Nursery Sanitation	Black Currant Erad.	Super-vision of Ribes Erad.	Ribes Comp.	Treatment Diseased Pines	Field Data	Total
Maine	4.5	10.7	61.4	1.0	-	12.0	-	0.3	10.1	100.0
N. H.	5.3	18.5	56.7	0.2	-	9.0	-	-	10.3	100.0
Vt.	1.4	16.6	60.2	1.2	-	10.1	-	-	10.5	100.0
Mass.	4.7	17.3	31.4	0.6	6.5	4.1	0.3	29.5	5.6	100.0
R. I.	9.3	10.2	52.2	0.6	-	12.0	-	-	15.7	100.0
Conn.	3.0	5.8	39.2	1.0	37.6	9.6	-	-	3.8	100.0
N. Y.	-	10.9	61.5	1.3	0.4	19.55	0.05	-	6.3	100.0
N. J.	19.3	57.9	22.5	0.3	-	-	-	-	-	100.0
Penna.	1.0	6.0	68.6	0.7	-	11.7	-	1.0	11.0	100.0
Totals	2.6	11.4	56.3	0.9	4.7	12.7	0.04	3.2	8.16	100.0

Note: Other than nursery sanitation and black currant elimination

STATE & FEDERAL EXPENDITURES IN NORTHEASTERN STATES DURING CALENDAR YEAR 1934 (PERCENTAGE OF TOTAL SPENT ON EACH PROJECT.)

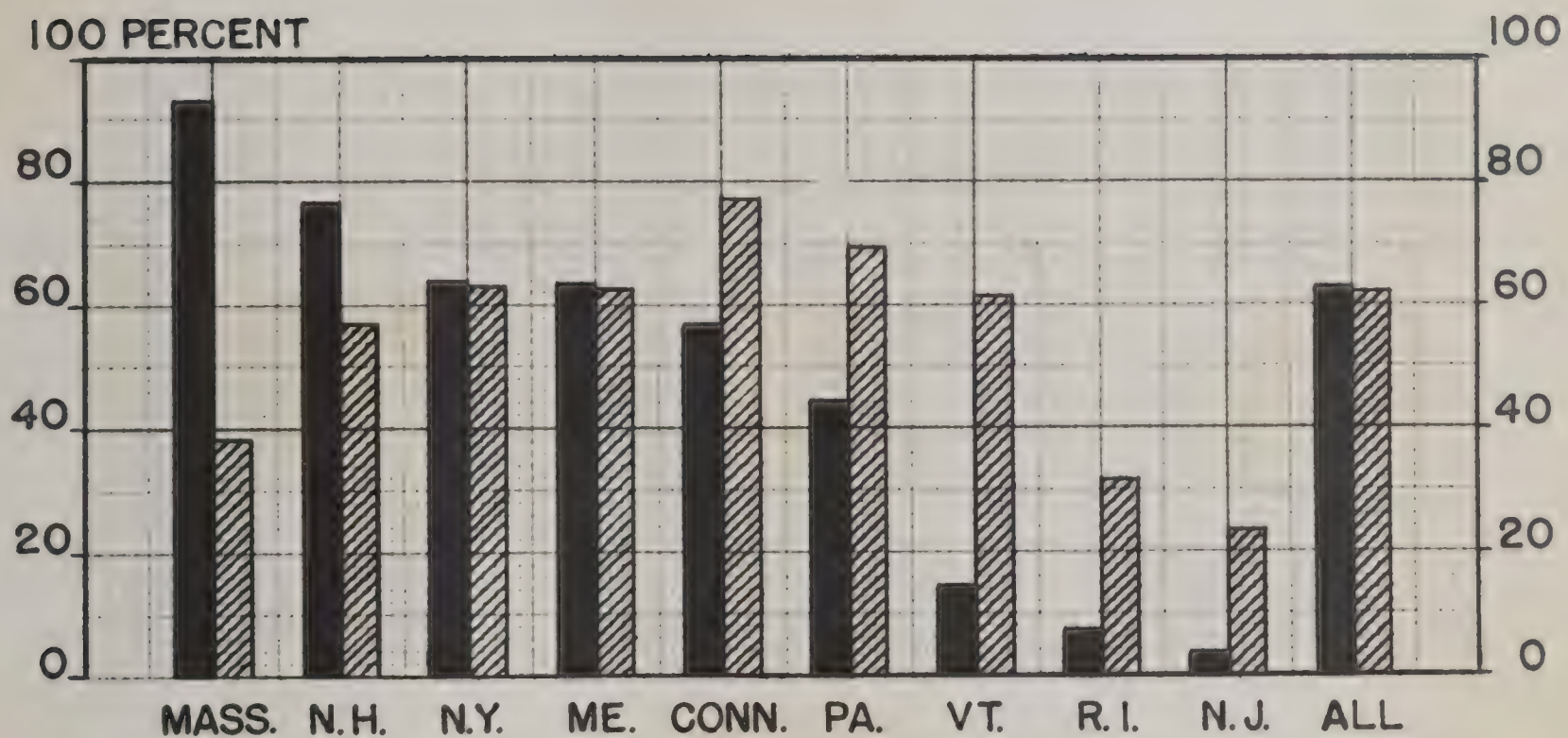


TOTAL STATE EXPENDITURES = \$116,919.40



TOTAL FEDERAL EXPENDITURES = \$708,057.78

PERCENTAGE OF TOTAL EXPENDITURES IN THE VARIOUS NORTHEASTERN STATES
DURING 1934 USED FOR THE ACTUAL WORK OF LOCATION AND PULLING RIBES



■ State Expenditures

▨ State and Federal Expenditures

Note: Includes regular Ribes eradication, special black currant elimination, and nursery sanitation.

PERCENTAGE OF TOTAL EXPENDITURES IN THE VARIOUS NORTHWESTERN STATES
DURING 1911 USED FOR THE ACTUAL WORK OF LOCATION AND FILLING RIVER

State Expenditures

State and Federal Expenditures

Note: Includes regular river sanitation, special block current
elimination, and nursery sanitation.

Table 95.- Total Cost of All Cooperative Blister Rust Control Activities
In Northeastern States, 1918-1934, Inclusive

State	State B.R. Approp.	Other State Approp.	Federal Funds				Total
			(1923-1934)	(1923-1934)	(1923-1934)	(1923-1934)	
Maine	\$ 91,991.74	\$ 10,236	\$ 1,450.80	-	\$ 25,322.84	\$ 40,182.92	\$ 41,939.92
N. H.	247,550.08	20,999	-	-	\$ 51,645.01	\$ 78,823.22	\$ 12,343.21
Vt.	52,994.04	-	-	-	\$ 10,202.03	\$ 24,212.40	-
Mass.	229,014.11	50,265	\$ 1,450.80	\$ 80,481.12	\$ 20,042.82	\$ 17,988.22	-
R. I.	46,902.07	2,013	-	-	\$ 10,412.38	\$ 49,804.91	-
Conn.	114,276.05	1,127	\$ 20,022.32	\$ 1,220.10	\$ 19,672.02	\$ 48,322.14	-
N.Y.	924,923.78	23,808	\$ 1,228,377.1	-	\$ 25,717.98	\$ 181,927.92	-
N.J.	10,864.41	36	-	-	\$ 1,967.42	\$ 242.20	-
Penna.	63,358.10	310	-	-	\$ 22,022.87	\$ 22,022.87	\$ 73.77
All States	\$1,781,874.38	\$108,799	\$22,000.22	\$81,270.72	\$88,177,212.1	\$47,000,020.1	\$12,322,212

(1) Includes fed

During 1935

projects at Adirondack National Park, White Mountain National Park, and Allegheny National Forest.

The basis for acreages and values of other plants are given on page 1 and 2.

Table 9. - Total Cost of All Cooperative Winter Fuel Control Activities in Northeastern States, 1915-1934, Inclusive

State	State Approp.	Other State Approp.	Town & County Funds	Individual Funds or Labor	Total
Maine	\$ 31,331.74	\$ 10,338.40	\$ 80,537.19	\$ 83,333.01	\$ 205,030.34
N. H.	347,860.08	30,939.97	356,853.48	47,001.67	672,403.21
Vt.	52,994.04	-	1,167.31	31,803.54	156,401.89
Mass.	339,014.11	30,388.35	1,899.33	91,688.69	372,637.30
R. I.	46,903.07	3,013.88	-	381.36	49,497.36
Conn.	114,376.08	1,127.82	14,111.89	8,803.62	137,899.45
N. Y.	924,932.78	33,808.96	7,474.64	128,347.38	1,124,564.66
N. J.	10,334.41	86.80	-	-	10,901.21
Penn.	63,338.10	310.43	-	1,522.63	65,222.15
All States	\$1,781,374.33	\$109,739.57	\$471,804.34	\$473,070.80	\$2,835,800.89

COOPERATIVE BLISTER RUST CONTROL EXPENDITURES IN NORTHEASTERN STATES 1918-1934 INCLUSIVE

Table 96.- Relation of Total Cost of All Control Activities to Total Commercial Value of White Pine in Northeastern States

State	Acreage of White Pine	Commercial Value of White Pine	Cost of All Control Activities(1)	Percent of Total Commercial Value Represented by Cost of All Control Activities	Percent of Total Control Area Protected	
					Initial	Re-Prod.
Maine	2,608,911	\$102,109,599.	\$693,645.80	0.7	71.1	3.1
N. H.	1,544,033	68,919,198.	1,238,963.58	1.8	84.7	14.0
Vt.	567,084	18,339,854.	308,319.97	1.7	60.2	23.9
Mass.	958,564	44,257,012.	784,137.41	1.8	98.2	29.8
R. I.	73,196	2,002,053.	123,203.41	6.1	90.1	23.4
Conn.	216,154	10,240,416.	342,765.78	3.3	92.4	42.3
N. Y.	1,315,957	57,127,222.	1,863,277.90	3.3	60.0	18.2
N. J.	7,600	275,700.	19,486.74	7.1	38.0	0
Penna.	375,628	12,455,437.	306,211.26	2.5	27.5	49.7
All States	7,667,127	\$315,726,491.	\$5,680,011.85	1.8	76.2	15.8

(1) Includes federal emergency funds expended on control work during 1933 and 1934, and expenditures for strictly federal projects at Acadia National Park, White Mountain National Forest, and Allegheny National Forest.

The basis for acreages and values of white pine are given on pages 1 and 2.

ALL CONTROL COST REPRESENTS 1.0% COMMERCIAL PINE VALUE.
OF WHITE PINE FOR YEAR IN NEW HAMPSHIRE AND NEW JERSEY
EXPENDITURES AND PINE AREA) EQUALS 1.0%.

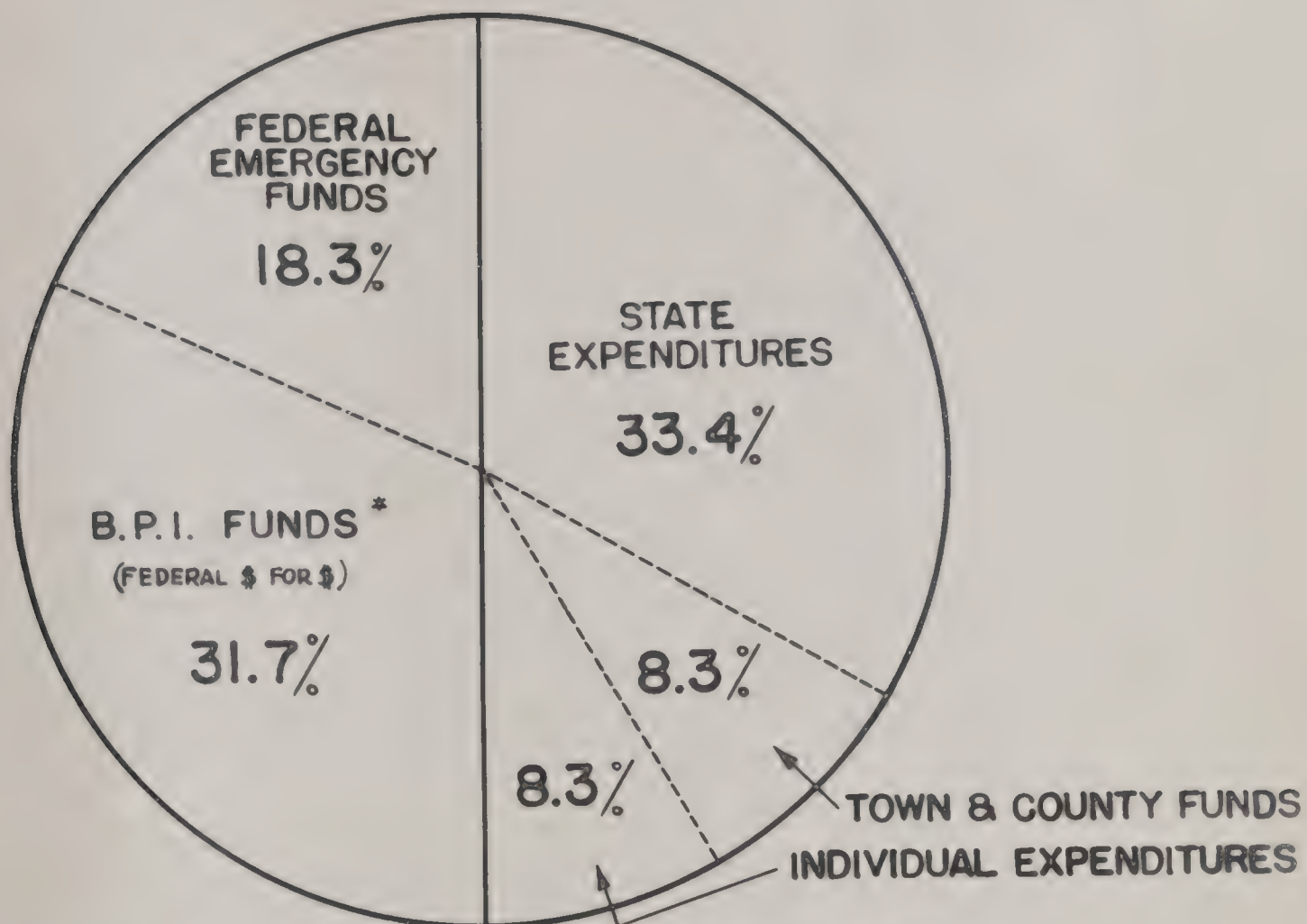
Table 20 - Relation of Total Cost of All Control Activities to Total Commercial Value of White Pine in Northeastern States

State	Acreage of White Pine	Commercial Value of White Pine	Cost of All Control Activities (1)	Cost of All Control Activities Represented by Commercial Value	Percent of Total Control Area Protected	Percent of Total Initial
Ala.	2,608,911	\$105,102,899	\$337,645.80	0.3	11.1	3.1
Ariz.	1,424,077	\$2,319,192	1,238,953.58	1.3	84.7	14.0
Cal.	267,024	18,733,834	308,319.97	1.7	60.2	27.9
Col.	528,624	11,257,012	134,127.11	1.2	33.2	22.8
Id.	77,195	2,002,077	127,207.11	6.1	20.1	27.4
Mont.	216,174	10,340,416	342,762.78	3.3	22.4	45.3
N.J.	1,745,927	21,127,222	1,868,217.90	1.3	60.0	15.2
N.Y.	7,600	27,700	12,182.74	7.1	38.0	0
Wash.	752,628	12,142,127	302,211.26	2.5	27.2	49.7
Wyo.	2,671,127	\$712,750,141	\$5,880,011.27	1.2	16.2	17.8

(1) Includes federal emergency funds expended on control work during 1933 and 1934, and expenditures for strictly federal projects at Acadia National Park, White Mountain National Forest, and Allegheny National Forest.

The basis for acreages and values of white pine are given on pages 1 and 2.

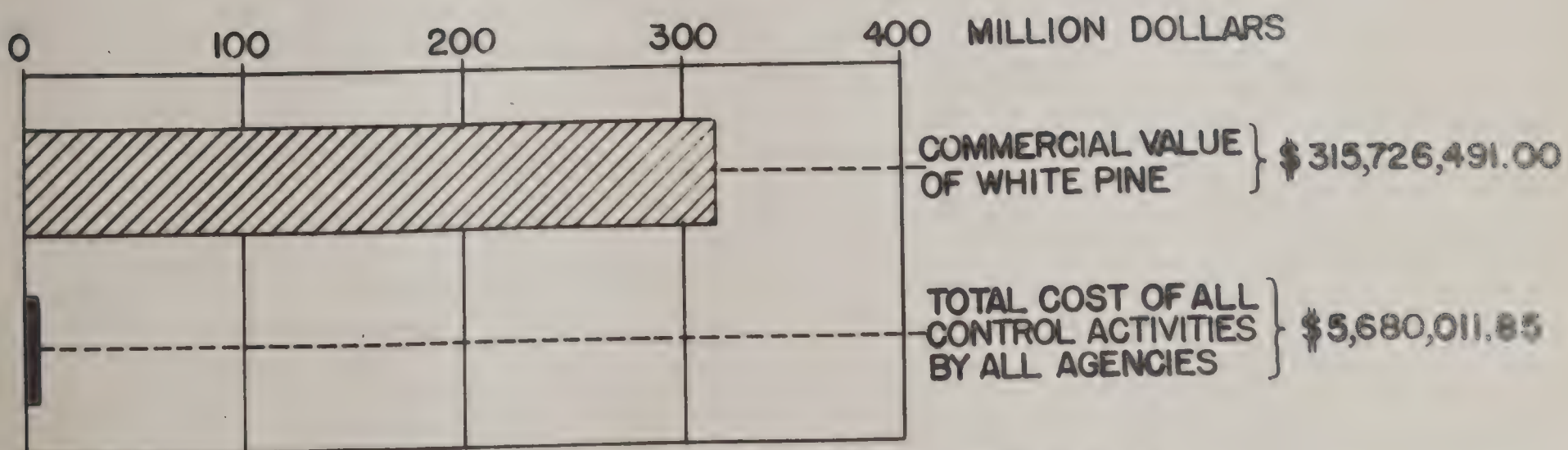
COOPERATIVE BLISTER RUST CONTROL EXPENDITURES IN NORTHEASTERN STATES 1918-1934 INCLUSIVE



TOTAL EXPENDITURES = \$5,680,011.85

* INCLUDES \$12,366.12 BY FOREST AND PARK SERVICES

RELATION COMMERCIAL VALUE OF WHITE PINE TO TOTAL COST OF ALL CONTROL ACTIVITIES IN NORTHEASTERN STATES 1918-1934 INCLUSIVE



TOTAL CONTROL COST REPRESENTS 1.8% COMMERCIAL PINE VALUE.

COST OF CONTROL PER ACRE PER YEAR IN NEW ENGLAND AND NEW YORK (BASED ON
TOTAL EXPENDITURES AND PINE AREA) EQUALS 6.7 CENTS.

Table 97.- Results and Cost of Ribes Eradication Project in Northeastern States
(1918 - 1934, Inclusive)

State	Total Acreage Cleared of Ribes (Initial and Re-Erad.)	Estimated Acreage White Pine Protected		Est. Percentage White Pine (In Control Area) Protected		Ribes Eradicated * (Wild & Cult.)	** Total Cost of Ribes Eradication	Total Cost of All Control Activities
		Initial	Re-Erad.	Initial	Re-Erad			
Maine	2,997,954	1,266,335	39,090	71.1	2.2	26,395,206	\$ 349,513.32	693,645.80
N. H.	3,214,205	1,307,796	183,108	84.7	11.8	44,912,819	693,463.07	1,238,963.58
Vt.	277,135	72,711	17,383	60.2	14.4	3,319,711	137,479.34	308,319.97
Mass.	2,333,608	915,778	272,722	98.2	29.3	15,422,932	353,876.33	784,137.41
R. I.	337,103	65,950	15,386	90.1	21.0	291,767	50,066.30	123,203.41
Conn.	377,973	129,339	54,726	92.4	39.1	3,180,359	124,384.49	342,765.78
N. Y.	1,268,665	497,611	90,546	60.0	10.9	27,667,282	938,845.98	1,863,277.90
Sub- Total	10,806,643	4,255,520	672,961	78.5	12.4	121,190,076	2,647,628.83	5,354,313.85
N. J.	12,695	2,712	-	38.0	-	23,485	896.93	19,486.74
Penna	171,277	32,993	16,376	27.5	13.7	11,415,063	183,032.40	306,211.26
All States	10,990,615	4,291,225	689,337	76.2	12.1	132,628,624	2,831,558.16	5,680,011.85

Note: Summary includes federal emergency funds expended on control work during 1933 and 1934

* Does not include bushes pulled in connection with special nursery sanitation and black currant elimination projects.

**Does not include cost of special nursery sanitation and black currant elimination projects.

The basis for estimating the acreages of pine protected in the various Northeastern States are given on Page 56 in the analysis of the status of control summary.

Per Acre Values
(For Table 97)

State	Ribes Per Acre (Wild only)	Cost Per Acre							
		Based on Ribes Eradication Costs Only				Based on Total Expenditures			
		1918-1934		Ave. Per Year		1918-1934		Ave. Per Year	
		Total Area Worked	Pine Area Protected	Total Area Worked	Pine Area Protected	Total Area Worked	Pine Area Protected	Total Area Worked	Pine Area Protected
Maine	8.8	.117	.268	.007	.016	.231	.531	.014	.031
N.H.	13.9	.216	.465	.013	.027	.385	.831	.023	.049
Vt.	11.9	.496	1.53	.029	.090	1.11	3.42	.065	.201
Mass.	6.5	.152	.298	.009	.018	.336	.660	.020	.040
R.I.	0.8	.149	.616	.009	.036	.365	1.51	.022	.089
Conn.	8.4	.329	.676	.019	.040	.907	1.86	.053	.109
N.Y.	21.8	.740	1.60	.044	.094	1.47	3.17	.086	.186
All States	11.2	.245	.537	.014	.032	.495	1.09	.029	.064

No satisfactory comparison can be made between the per acre costs in the various states, due to numerous factors which directly influence the cost of the eradication work. For instance, about 75% of the acreage worked in Maine has been covered by scouts. This has been possible because of the localized distribution of the Ribes. For this reason, the per acre costs in Maine are considerably lower than in the other states. It will be noted in Rhode Island that the cost per acre of pine protected is much greater than the per acre cost based on total area worked. A large acreage of potential pine land has been cleared of Ribes in that state. The small isolated pine areas in Vermont have necessitated larger proportionate protection zones, thus increasing the cost per acre of pine protected. In New York, the cost has been increased by the size and abundance of Ribes, the ruggedness of the topography, and the inaccessibility of many of the control areas.

The compilation of per acre values on the basis of total costs is hardly justified because they include expenditures for such projects as field investigations and black currant eradication, which are not directly related to the regular Ribes eradication work, particularly the latter cannot be figured on a per acre basis.

Per Acre Values
(For Table 2)

State	Riparian Per Acre (Wild only)	Based on Higher Eradication Costs Only				Based on Total Expenditures			
		1918-1934		1918-1934		1918-1934		1918-1934	
		Total Area	Pine Area	Total Area	Pine Area	Total Area	Pine Area	Total Area	Pine Area
Maine	8.1	117	358	107	016	231	231	014	071
N.H.	13.9	216	465	017	027	385	231	027	049
Vt.	11.3	456	1,277	059	090	1,111	2,445	065	201
Mass.	6.2	152	238	009	018	736	660	030	040
N.I.	0.3	149	316	009	036	365	1,251	022	089
Conn.	5.4	159	676	019	040	907	1,282	057	109
N.Y.	21.8	740	1,260	044	094	1,417	2,117	066	186
All States	11.2	245	577	014	032	1,405	1,077	029	064

No satisfactory comparison can be made between the per acre costs in the various states, due to numerous factors which directly influence the cost of the eradication work. For instance, about 75% of the acreage worked in Maine has been covered by spruce. This has been possible because of the localized distribution of the spruce. For this reason, the per acre costs in Maine are considerably lower than in the other states. It will be noted in Rhode Island that the cost per acre of pine protected is much greater than the per acre cost based on total area worked. A large acreage of potential pine land has been cleared of spruce in that state. The small isolated pine areas in Vermont have necessitated larger proportionate protection zones, thus increasing the cost per acre of pine protected. In New York, the cost has been increased by the size and abundance of spruce, the ruggedness of the topography, and the inaccessibility of many of the control areas.

The compilation of per acre values on the basis of total costs is hardly justified because they include expenditures for such projects as field investigations and black current eradication, which are not directly related to the regular spruce eradication work. Particularly the latter cannot be figured on a per acre basis.

Summary of Cooperative Blister Rust Control

White pine (12-15) - 100% control
Mixed white pine (12-15) - 100% control

Mixed white pine (12-15) - 100% control
Mixed white pine (12-15) - 100% control

White pine (12-15) - 100% control
Mixed white pine (12-15) - 100% control

White pine (12-15) - 100% control
Mixed white pine (12-15) - 100% control
Mixed white pine (12-15) - 100% control

SUMMARY, BY STATES, OF COOPERATIVE BLISTER RUST CONTROL

ACTIVITIES DURING THE PERIOD 1918-1934, INCLUSIVE

White pine blister rust is a serious pest of white pine. It is caused by the fungus *Dothidea piceae* (Sacc.) Karst. The disease is characterized by the formation of characteristic "blister" lesions on the needles. These lesions are caused by the formation of abnormal growths on the needles, which are caused by the formation of abnormal growths on the needles. These lesions are caused by the formation of abnormal growths on the needles. These lesions are caused by the formation of abnormal growths on the needles.

Summary of activities during the period 1918-1934, inclusive. This is, however, a summary of the activities of the various states, and not of the activities of the various states. This is, however, a summary of the activities of the various states, and not of the activities of the various states. This is, however, a summary of the activities of the various states, and not of the activities of the various states.

Summary of activities during the period 1918-1934, inclusive

In the southwestern part of the country, the activities of the various states during the period 1918-1934, inclusive. In the southwestern part of the country, the activities of the various states during the period 1918-1934, inclusive. In the southwestern part of the country, the activities of the various states during the period 1918-1934, inclusive. In the southwestern part of the country, the activities of the various states during the period 1918-1934, inclusive.

Summary of activities during the period 1918-1934, inclusive

General summary of activities during the period 1918-1934, inclusive. General summary of activities during the period 1918-1934, inclusive. General summary of activities during the period 1918-1934, inclusive. General summary of activities during the period 1918-1934, inclusive.

SECRET

SUMMARY, BY STATES, OF COOPERATIVE BILSTEN RUSE COMEOL
ACTIVITIES DURING THE PERIOD 1918-1930, INCLUSIVE

The following summary of activities during the period 1918-1930, inclusive, is based on the reports of the various states and territories which have furnished information to the Bureau of Investigation. It is not intended to be a complete record of all activities, but rather a summary of the more important ones. The states and territories included are: Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming, and the District of Columbia.

The following is a list of the states and territories which have furnished information to the Bureau of Investigation during the period 1918-1930, inclusive:

BLISTER RUST CONTROL IN MAINEAcreage and Commercial Value of White Pine

	<u>Acreage</u>	<u>Value</u>
Pure white pine (80-100% pine) - (Over 6" DBH.....	304,790	\$34,136,480.
(Under 6" DBH.....	284,490	7,112,250.
Mixed white pine (21-29% pine in mixture.....	248,258	6,951,224.
(30-79% pine in mixture.....	794,915	44,515,240.
Other types with scattered white pine stocking and restocking*.....	976,458	(6,835,206.-Pine Stocking (1,218,046.-Restocking
White pine restocking in pure merchantable and mixed white pine types.....	727,269**	1,341,153.
Totals.....	2,608,911	\$102,109,599.

*Excludes those "other types" which have 1-20% pine (above restocking size), but do not contain white pine restocking.

** This acreage not included in total as it is already listed under pure and mixed white pine types.

Basis for estimating value of white pine: merchantable stumpage figured at normal value of \$7 per M - average volume per acre, pure merchantable white pine = 16 M bd. ft.; mixed white pine, 21-29% = 4 M bd.ft.; mixed white pine, 30-79% = 8 M bd.ft.; and white pine, above restocking size in other types = 1 M bd.ft. Pure stands of white pine under 6" DBH given normal value of \$25 per acre. Estimated normal per acre value of white pine restocking: degree of restocking; light = \$1, medium = \$2, heavy = \$3.

Stumpage prices under present abnormal conditions range from \$2 to \$6 per thousand board feet. This is, however, a temporary situation which should return to normal when economic conditions improve.

Ribes Conditions

In the southwestern part of the state, Ribes are concentrated chiefly on about 20 percent of the area. These concentrations, mostly Ribes hirtellum and prostratum, necessitate crew work, but the remaining portion can be cleared of such bushes by scouting methods. In the other sections of the state, Ribes are more or less generally distributed and more abundant, thus requiring systematic crew work to insure effective removal of the bushes. An average of 8.8 Ribes per acre have been destroyed, on a total of 2,997,954 acres worked during the period 1918 to 1934, inclusive.

Pine Infection Conditions

General throughout the commercial range of white pine - based on township units in this region, the percentage of diseased pine ranges from 1 to 10 per cent of the total amount of pine. Most of the infection has originated since 1918, and is especially abundant in southwestern Maine, notably in Lincoln County. The oldest infection is located at Kittery Point. It apparently originated in 1897 from cultivated black currants imported from England. Heavy waves of infection occurred in unprotected areas during 1919 and 1925.

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Category	Amount
White pine (20-1000 pine) - (Over 50 tons)	\$34,750
(Under 50 tons)	\$1,115,250
Total	\$1,150,000

10-79	fine in mixture	10-80	fine in mixture
6-81	fine in mixture	6-82	fine in mixture

Not types with scattered white pinpoints and

Life was bustling in your remarkable and

[Faint mirrored text from reverse side of page]

and which are the types.
This amount was included in total as it is already listed under pure
white, but it contains white pine testing.

[illegible]

These prices reflect seasonal variations in the market for the various types of wood. The prices for the various types of wood are as follows:

SECRET

In the southwestern part of the state, Ribes are concentrated chiefly on about 5 percent of the area. These concentrations, mostly Ribes hirtellum and prostratum, constitute crow weed, but the remaining portion can be cleared of small bushes by some of the methods. In the other sections of the state, Ribes are more or less generally distributed and more abundant, thus requiring systematic crew work to insure effective removal of the bushes. An average of 4.2 Ribes per acre have been destroyed, on a total of 2,997,954 acres worked during the period 1918 to 1934, inclusive.

Wine Tasting Unalaska

Several thousand the commercial range of white pine - based on findings made in this region, the percentage of diseased pine ranges from 1 to 10 per cent of the total count of trees. Most of the infection has originated since 1918, and is essentially constant in southwestern Maine, notably in Lincoln County. The oldest infection is located in Liberty Village. It is apparently originated in 1897 from cultivated trees previously imported from England. Heavy cases of infection occurred in Massachusetts since 1918 and 1919.

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Information and Security Administration, Department of Justice, Washington, D.C. 20535

International

201702

*No record kept of these items after April 30, 1934.
**Included with "Exhibits attached" after April 30, 1934.

" " " " " " " " " " " "

Town and Village Council is Michael Ross Council Work

During the period 1918-1934, inclusive, a total of \$90,527.19 was expended from 513

Results of Ribes Eradication Work, 1918-1934, Inclusive*
(Initial and Re-Eradication)

Program	Acreage Worked	Ribes Pulled		Cost					Per Acre	
		Wild	Cult.	State	Towns	Indiv.	Govt.	Total	Cost	Ribes
Regular	2,822,388	20,487,702	119,827	30911.51	89669.01	82022.19	47516.10	250,115.81	.089	7.3
E.C.W.	113,035	3,593,313	4,879	135.00	-	-	59041.03	59,176.03	.524	31.8
P.W.A.	59,982	2,120,880	1,917	2087.58	-	11.25	36622.75	38,721.58	.646	35.4
E.R.A.	2,549	66,688	-	70.10	-	-	1425.80	1,496.90	.587	26.2
Total	2,997,954	26,268,583	126,623	33204.19	89669.01	82033.44	144606.68	349,513.32	.117	8.8

*Excludes nursery sanitation work, 1930-1934, inclusive.

The expenditures by the Government under the Regular Program include \$47,516.10 B.P.I. money, \$3145.83 of which was spent on the project at Acadia National Park; \$8345.53 by the National Park Service for control work at Acadia Park.

The cost of the Ribes eradication project includes owners' labor (valued at 40 cents per hour) all expenditures for wages of laborers, scouts and foremen employed in locating and pulling Ribes - cost of crew transportation and miscellaneous expenses for trail paper, picks, etc. In the case of the E.C.W. personnel, the cost of their total time on Ribes eradication work was figured at the rate of \$1.35 per eight hour day in 1933 and \$1.40 in 1934.

Results of First Re-Eradication of Ribes, 1923-1934, Inclusive
(Excludes nursery sanitation work, 1930-1934, inclusive)

Program	Acreage Re-Worked	Ribes Pulled		Total Cost	Per Acre	
		Wild	Cult.		Cost	Ribes
Regular	64,051	795,040	1560	15,256.12	.238	12.4
E.C.W.	17,935	260,187	53	6,571.20	.366	14.5
P.W.A.	5,328	73,474	-	2,316.58	.435	13.8
E.R.A.	2,549	66,688	-	1,496.90	.587	26.2
Totals	89,863	1,195,389	1613	25,640.80	.285	13.3

No direct comparison is practicable between the per acre cost of the re-eradication work and the corresponding cost for all Ribes eradication, since there is a variation in the acreage involved and in the sites examined. Most of the re-eradication work has been in sites containing Ribes concentrations where crew work was required.

Results of Ribes Eradication Work at Acadia National Park
(Included in preceding eradication summaries)

Program	Type of Erad.	Acreage Worked	Ribes Pulled		Cost				Per Acre	
			Wild	Cult.	Park Service	B.P.I.	E.C.W.	Total	Cost	Ribes
Regular	All									
	Initial	7,726	503,920	-	8345.53	3145.83	-	11,491.36	1.49	65.2
E.C.W.	Initial	10,128	255,977	242	-	-	9,593.90	9,593.90	.947	25.3
	Re-Erad.	2,632	16,020	-	-	-	1,823.59	1,823.59	.693	6.1
	Total	12,760	271,997	242	-	-	11,417.49	11,417.49	.895	21.3
Total	Initial	17,854	759,897	242	8345.53	3145.83	9,593.90	21,085.26	1.18	42.6
	Re-Erad.	2,632	16,020	-	-	-	1,823.59	1,823.59	.693	6.1
	Total	20,486	775,917	242	8345.53	3145.83	11,417.49	22,908.85	1.12	37.9

This work at Acadia National Park was conducted as a strictly federal project by the National Park Service in cooperation with the Bureau of Plant Industry during the period 1929-1932, inclusive. All control work on the Park was performed by C.C.C. crews during 1933 and 1934, the project being under the technical supervision of the Division of Plant Disease Control.

CONFIDENTIAL - SECURITY INFORMATION

Worked	Rate	Days	State	Notes	Index	Notes	Rate	Days	Worked
15,000.00	50.00	300.00	10.00	10.00	10.00	10.00	10.00	300.00	15,000.00
5,000.00	50.00	100.00	10.00	10.00	10.00	10.00	10.00	100.00	5,000.00
10,000.00	50.00	200.00	10.00	10.00	10.00	10.00	10.00	200.00	10,000.00
15,000.00	50.00	300.00	10.00	10.00	10.00	10.00	10.00	300.00	15,000.00
20,000.00	50.00	400.00	10.00	10.00	10.00	10.00	10.00	400.00	20,000.00
25,000.00	50.00	500.00	10.00	10.00	10.00	10.00	10.00	500.00	25,000.00
30,000.00	50.00	600.00	10.00	10.00	10.00	10.00	10.00	600.00	30,000.00
35,000.00	50.00	700.00	10.00	10.00	10.00	10.00	10.00	700.00	35,000.00
40,000.00	50.00	800.00	10.00	10.00	10.00	10.00	10.00	800.00	40,000.00
45,000.00	50.00	900.00	10.00	10.00	10.00	10.00	10.00	900.00	45,000.00
50,000.00	50.00	1,000.00	10.00	10.00	10.00	10.00	10.00	1,000.00	50,000.00

*Excludes nursery sanitation work, 1950-1954, inclusive.
The expenditure by the Government under the Reclamation Program include \$4,516,104.51.
of which was spent on the project at Acadia National Park; \$2,257.53 by the
National Park Service for control work at Acadia Park.

The cost of the Ribes eradication project includes owner's labor (valued at 40 cents per hour) all expenditures for wages of laborers, scouts and foremen employed in locating and pulling Ribes - cost of crew transportation and miscellaneous expenses for fuel, paper, picnic, etc. In the case of the E.C.W. personnel, the cost of their total time on Ribes eradication was figured at the rate of \$1.75 per eight hour day in 1977 and \$1.40 in 1978.

ORIGINAL, #701-1091, REFER TO NEW COLLECTION OF 1931 TO 1937
(ORIGINAL, #701-1091, NEW COLLECTION 1931 TO 1937)

[illegible]

No direct comparison is practicable between the per acre cost of the re-irradiation and the corresponding cost for all other irradiation, since there is a variation in the acreage involved and in the acres examined. Most of the re-irradiation work has been in the concentration of the work was required.

(Enclosed in preceding communication)

Type of Work	Hours	Rate	Total	Cost	Profit	Net Income
General	10.00	\$1.00	\$10.00	\$10.00	\$0.00	\$0.00
Painting	5.00	\$1.50	\$7.50	\$7.50	\$0.00	\$0.00
Plumbing	3.00	\$2.00	\$6.00	\$6.00	\$0.00	\$0.00
Electric	2.00	\$2.50	\$5.00	\$5.00	\$0.00	\$0.00
Roofing	1.00	\$3.00	\$3.00	\$3.00	\$0.00	\$0.00
Other	1.00	\$1.00	\$1.00	\$1.00	\$0.00	\$0.00
Total	22.00		\$32.50	\$32.50	\$0.00	\$0.00

This work at Acadia National Park was conducted as a strictly Federal project by the National Park Service in cooperation with the Bureau of Plant Industry during the period 1919-1932, inclusive. All control work on the Park was performed by U.S.C. crews during 1933 and 1934, the project being under the technical supervision of the Division of Plant Industry.

Status of Ribes Eradication Work - December, 1934

Type of Erad.	Acreage of Control Area	Acreage of Control Area Worked	Percentage of Control Area Worked*	Acreage Still in Need of Protection	Acreage of White Pine	
					Total in Control Area	Est. Acreage Protected
Initial	4,091,733	2,908,091	71.1	1,183,642	1,781,062	1,266,335
Re-Erad.	2,382,290	89,867	3.8	2,292,427	1,036,296	39,090

*The percentages are the same for the pine area protected.

The "control area" for the initial work comprises the acreage initially cleared of Ribes (Pine area plus protection zones) to date plus the estimated acreage still in need of initial protection. The latter figure was obtained from estimates made by the agents for each town within their districts. Outside the agents' districts the acreage still in need of protection was estimated by the Boston Office as being the acreage of the pure and mixed (30-79%) white pine plus an additional acreage for protection zones equivalent to 30 per cent of this pine area.

The "control area" for the re-eradication program is based on the total area initially cleared of Ribes during the period 1918-1929, inclusive, or on the assumption that all areas initially worked prior to five years ago now need re-examination for Ribes.

The pine acreage in the initial control area was estimated to be the total pine area within the agents' districts and the acreage of pure and mixed (30-79%) white pine outside the agents' districts. The acreage of pine protected, therefore, amounts to the same proportion of the total pine area in the agents' districts as that percentage of the total control area in their districts that has been initially cleared of Ribes. The same proportion was used in compiling the pine acreages for the re-eradication work.

Nursery Sanitation

Status of Nursery Sanitation Work - December, 1934

	Number of Nurseries Growing White Pine				Number Protected from Blister Rust			
	Reforestation Only	Ornamental Only	Both	Total	Reforestation Only	Ornamental Only	Both	Total
Commercial nurseries	1	3	5	9	1	1	3	5
State nursery	1	-	-	1	1	-	-	1
Total	2	3	5	10	2	1	3	6

The two unprotected nurseries, growing white pine for reforestation and ornamental purposes, are no longer of importance from a control viewpoint. The one at Skowhegan is going out of business and the planting stock is too large for reforestation; while the other, located at Cupsuptic and owned by the Brown Company, is discontinuing the growing of white pine at this nursery due to the difficulty of maintaining Ribes-free conditions in the environs. The existing stock in this latter nursery will be planted locally on lands owned by the Company. ^{During} 1929, the Western Maine Forest Nursery at Fryeburg was granted a pine shipping permit under Federal Quarantine 63. This permit was revoked in 1931, but this nursery again qualified in 1933.

Table of White Pine Plantation Work - December, 1934

Type of Work	Number of Acres	Number of Acres of Control Area	Number of Acres of Control Area	Number of Acres of Control Area	Number of Acres of Control Area
Control Area	1,000	1,000	1,000	1,000	1,000
Control Area	1,000	1,000	1,000	1,000	1,000
Control Area	1,000	1,000	1,000	1,000	1,000
Control Area	1,000	1,000	1,000	1,000	1,000
Control Area	1,000	1,000	1,000	1,000	1,000

The work done on the White Pine Plantation during the month of December, 1934, was of the following nature:

The work done on the White Pine Plantation during the month of December, 1934, was of the following nature:

The work done on the White Pine Plantation during the month of December, 1934, was of the following nature:

Summary of Work

Table of White Pine Plantation Work - December, 1934

Type of Work	Number of Acres	Number of Acres of Control Area	Number of Acres of Control Area	Number of Acres of Control Area	Number of Acres of Control Area
Control Area	1,000	1,000	1,000	1,000	1,000
Control Area	1,000	1,000	1,000	1,000	1,000
Control Area	1,000	1,000	1,000	1,000	1,000
Control Area	1,000	1,000	1,000	1,000	1,000
Control Area	1,000	1,000	1,000	1,000	1,000

The work done on the White Pine Plantation during the month of December, 1934, was of the following nature:

The work done on the White Pine Plantation during the month of December, 1934, was of the following nature:

The work done on the White Pine Plantation during the month of December, 1934, was of the following nature:

Ribes Eradication Work in Connection with Nursery Sanitation Project,
1930-1934, Inclusive

Type of Work	Acreage Worked	Ribes Pulled		Total Cost	Per Acre	
		Wild	Cult.		Cost	Ribes
Initial eradication	206	103,516	22	\$522.65	\$2.54	502.5
Re-eradication	635	10,624	-	802.03	1.26	16.7
Total	841	114,140	22	\$1324.68	1.58	135.7

Since 1930, a separate record has been kept of all nursery sanitation work and these data have not been included in the regular eradication summary. Prior to 1930, it was not possible to separate these data from the available records. However, an incomplete summary supplied by the state leader shows that in connection with such work during the period 1925-1929, inclusive, a total of 815 acres was cleared of 92,912 wild Ribes at a cost of \$702.10. Of this total, 400 acres were re-eradication work in which 1,343 wild Ribes were removed at a cost of \$85.00.

Demonstration Control - Black Current Eradication

The control policy in Maine requires the destruction of all cultivated Ribes in white pine areas. Therefore, black currants are eradicated in connection with the regular town control projects. It will, however, be necessary to make special arrangements for eliminating Ribes nigrum outside the agent districts. Many Ribes americanum are cultivated in Maine, but apparently few Ribes nigrum.

Blister Rust Canker Elimination Work, 1932-1934, Inclusive

Project	Program	Total No. Pines Treated	No. Fatally Infected Pines Cut Down	Infections Removed		Total Cost
				Branch	Stem	
State	Regular	80,875	6046	14,677	1376	\$1055.12
Acadia Park	Regular	919	417	1,813	164	388.24
	E.C.W.	6,855	987	7,106	688	1239.31
	Total	7,774	1404	8,919	852	1627.55
Total	Regular	81,794	6463	16,490	1540	1443.36
	E.C.W.	6,855	987	7,106	688	1239.31
	Total	88,649	7450	23,596	2228	2682.67

The state work was conducted in 12 towns during 1932 and 1933, while the project at Acadia Park was initiated by the Park Service in 1932 and continued with C.C.C. personnel during 1933 and 1934.

Cultivated Ribes Compensation

No compensation has been paid for the 126,645 cultivated Ribes that have been uprooted in Maine during the period 1918-1934, inclusive.

1970-1971, Inclusive

Lines Eliminated Work in Connection with Forest Restoration Project

Type of Work	1970-1971		1971-1972		Total	
	Acres	Cost	Acres	Cost	Acres	Cost
Re-eradication	67	\$10,887	-	-	67	\$10,887
Initial eradication	50	\$107,916	15	\$282.17	65	\$108,198.17
Total	117	\$118,803	15	\$282.17	132	\$119,085.17

Since 1950, a separate record has been kept of all nursery eradication work and these data have not been included in the regular eradication summary. Prior to 1950, it was not possible to separate these data from the available records. However, an incomplete summary supplied by the state leader shows that in connection with such work during the period 1950-1959, inclusive, a total of 817 acres was cleared of *R. p.* with lines at a cost of \$112,110. Of this total, 400 acres were re-eradication work in which 1,707 lines were removed at a cost of \$85.00.

Black Current Eradication

The control policy in Maine requires the destruction of all cultivated Ribes in white pine areas. Therefore, black currants are eradicated in connection with the regular town control projects. It will, however, be necessary to make special arrangements for eliminating Ribes nigrum outside the agent districts. Many Ribes americanum are cultivated in Maine, but apparently few Ribes nigrum.

Elaborate Forest Damage Elimination Work, 1972-1973, Inclusive

Project	Program	State Acres	Total No. Trees		Total Cost
			Infected	Infected/Removed	
State	Eastern	80,412	604	14,511	\$177.15
	Western	112	117	17	\$38.30
	F.C.W.	6,805	381	1,106	\$123.71
	Total	87,329	1,102	15,634	\$339.16
Total	Eastern	87,329	8461	16,400	\$147.78
	F.C.W.	6,805	381	1,106	\$123.71
	Western	112	117	17	\$38.30
	Total	94,246	8,959	17,523	\$309.79

The state work was conducted in 15 towns during 1972 and 1973, while the project at Acadia Park was limited by the Park Service in 1972 and continued with D.C.C. personnel during 1972 and 1973.

Cultivated Ribes Eradication

No cooperation has been kept for the 186,609 cultivated Ribes that have been reported to Maine during the period 1918-1930, inclusive.

Surveys

During 1920 and 1921, the white pine types were mapped in several towns in Maine - Briscoe had maps and a report prepared of this work - maps used as a basis for control work and as an estimate of pine values. Strip line infection survey made by Frost in 1920 - the pines on rod wide strips totaling 38.5 miles in length were examined - a total of 7,046 pines were inspected, and 6.3 per cent were found infected - 11 plots, totaling 2.7 acres, were laid out adjacent to the strips, 14.4 per cent of the 970 pines in these plots were diseased - data used for informational purposes. Epidemiology survey made during 1926, by agents and Hirt, of white pine and other forest types, Ribes and infection conditions - maps and summaries prepared at Boston Office.- See "Pine Infection Conditions" for results of strip line study made in 1933.- During 1933 and 1934, detailed pine and control area mapping was conducted during the late fall, winter, and early spring months under the Regular, E.C.W. and P.W.A. Programs. Such activities resulted in 507,426 acres being mapped in detail, and an additional 581,239 acres were examined but not mapped due to lack of sufficient pine to justify the cost of control work. This mapping work during 1933 and 1934 required 2718 man days of labor.

Investigations

Demonstration control areas at Kittery Point and Brunswick - very little data on these studies available. Infection and effectiveness of control study made by Posey at Kittery Point - report published. Many pine damage plots laid out by agents - used for demonstration purposes - infection data summarized and used by agents in informational work. Effectiveness of control studies made by agents during 1929 and 1934. These data were summarized at the Boston Office, and copies of the summaries sent to the state leader and Washington Office. Four of the Maine agents, including the state leader, are cooperating in the study to determine the immunity of the Viking currant to blister rust infection.

Total Cost of All Blister Rust Control Work, 1918-1934, Inclusive

State BR. Approp.	Other State Approp.	Towns	Indiv.	B.F.I.	Park Service	E.C.W.	P.W.A.	E.R.A.	Total
\$91991.74	10236.40	90527.19	83335.01	249,874.54	9639.44	99681.04	56933.64	1426.80	\$693,645.80

The total expenditures for all control work include cost of administration, supervision, blister rust control agent activities, Ribes eradication, field investigations, nursery sanitation, and miscellaneous.

Relation of Total Cost of All Control Activities to Total Commercial Value of White Pine

Acreage of White Pine	Commercial Value of White Pine	Total Cost of All Control Activities, 1918-1934, Incl.*	Per Cent of Total Com- mercial Value Represented by Cost of All Control Work
2,608,911	\$102,109,599.	\$693,645.80	0.68

*Includes expenditures at Acadia National Park.

Summary

During 1937 and 1938, the white pine types were mapped in several towns in Maine - Hallowell and Bangor and a report prepared of this work - maps used as a basis for control work and as an estimate of pine values. This line indicates survey made by Forest in 1930 - the pines on road strips totaling 38.5 miles in length were examined - a total of 1,048 pines were inspected, and 4.7 per cent were found infected - 11 plots, totaling 2.1 acres, were laid out adjacent to the strip, 14.0 per cent of the 270 pines in these plots were diseased - data used for informational purposes. Subsequently survey made during 1936, by agents and staff, of white pine and other forest types, Pines and infection conditions - maps and summaries prepared at Forest Office. See "Pine Infection Conditions" for results of strip line study made in 1937. - During 1937 and 1938, detailed pine and control area mapping was conducted during the late fall, winter, and early spring months under the direction of E. C. E. and E. W. A. Programs. 251,239 acres were examined but not mapped due to lack of sufficient pine to justify the cost of control work. This mapping was during 1937 and 1938 required 211 man days of labor.

Investigation

Demonstration control areas at Kittery Point and Brunswick - very little data on these studies available. Infection and effectiveness of control study made by Forest at Kittery Point - report published. Many pine damage plots laid out by agents - used for demonstration purposes - infection data summarized and used by agents in informational work. Effectiveness of control studies made by agents during 1937 and 1938. These data were summarized at the Forest Office, and copies of the summaries sent to the State Leader and Washington Office. Four of the Maine agents, including the State Leader, are cooperating in the study to determine the immunity of the Viking current to blister rust infection.

Total Cost of All Blister Rust Control Work, 1937-1938, inclusive

State	Other	Approp. State	Approp. Federal	Service E.C.E.	E.W.A.	Total
1937-38	103,360.40	103,360.40	103,360.40	103,360.40	103,360.40	103,360.40

The total expenditures for all control work include cost of administration, supervision, blister rust control agent activities, field investigation, nursery sanitation, and miscellaneous.

Summary of Total Cost of All Control Activities - Total Commercial Value of White Pine

Summary of Commercial Value of White Pine	Total Cost of All Control Activities, 1937-1938, incl.	Est. Cost of Total Commercial Value
\$102,100,000	\$102,100,000	1.00

Year	1918-1919	1919-1920	1920-1921	1921-1922	1922-1923	1923-1924	1924-1925	1925-1926	1926-1927	1927-1928	1928-1929	1929-1930	1930-1931	1931-1932	1932-1933	1933-1934	1934-1935	1935-1936	1936-1937	1937-1938	1938-1939	1939-1940	1940-1941	1941-1942	1942-1943	1943-1944	1944-1945	1945-1946	1946-1947	1947-1948	1948-1949	1949-1950	1950-1951	1951-1952	1952-1953	1953-1954	1954-1955	1955-1956	1956-1957	1957-1958	1958-1959	1959-1960	1960-1961	1961-1962	1962-1963	1963-1964	1964-1965	1965-1966	1966-1967	1967-1968	1968-1969	1969-1970	1970-1971	1971-1972	1972-1973	1973-1974	1974-1975	1975-1976	1976-1977	1977-1978	1978-1979	1979-1980	1980-1981	1981-1982	1982-1983	1983-1984	1984-1985	1985-1986	1986-1987	1987-1988	1988-1989	1989-1990	1990-1991	1991-1992	1992-1993	1993-1994	1994-1995	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030	2030-2031	2031-2032	2032-2033	2033-2034	2034-2035	2035-2036	2036-2037	2037-2038	2038-2039	2039-2040	2040-2041	2041-2042	2042-2043	2043-2044	2044-2045	2045-2046	2046-2047	2047-2048	2048-2049	2049-2050	2050-2051	2051-2052	2052-2053	2053-2054	2054-2055	2055-2056	2056-2057	2057-2058	2058-2059	2059-2060	2060-2061	2061-2062	2062-2063	2063-2064	2064-2065	2065-2066	2066-2067	2067-2068	2068-2069	2069-2070	2070-2071	2071-2072	2072-2073	2073-2074	2074-2075	2075-2076	2076-2077	2077-2078	2078-2079	2079-2080	2080-2081	2081-2082	2082-2083	2083-2084	2084-2085	2085-2086	2086-2087	2087-2088	2088-2089	2089-2090	2090-2091	2091-2092	2092-2093	2093-2094	2094-2095	2095-2096	2096-2097	2097-2098	2098-2099	2099-2100	2100-2101	2101-2102	2102-2103	2103-2104	2104-2105	2105-2106	2106-2107	2107-2108	2108-2109	2109-2110	2110-2111	2111-2112	2112-2113	2113-2114	2114-2115	2115-2116	2116-2117	2117-2118	2118-2119	2119-2120	2120-2121	2121-2122	2122-2123	2123-2124	2124-2125	2125-2126	2126-2127	2127-2128	2128-2129	2129-2130	2130-2131	2131-2132	2132-2133	2133-2134	2134-2135	2135-2136	2136-2137	2137-2138	2138-2139	2139-2140	2140-2141	2141-2142	2142-2143	2143-2144	2144-2145	2145-2146	2146-2147	2147-2148	2148-2149	2149-2150	2150-2151	2151-2152	2152-2153	2153-2154	2154-2155	2155-2156	2156-2157	2157-2158	2158-2159	2159-2160	2160-2161	2161-2162	2162-2163	2163-2164	2164-2165	2165-2166	2166-2167	2167-2168	2168-2169	2169-2170	2170-2171	2171-2172	2172-2173	2173-2174	2174-2175	2175-2176	2176-2177	2177-2178	2178-2179	2179-2180	2180-2181	2181-2182	2182-2183	2183-2184	2184-2185	2185-2186	2186-2187	2187-2188	2188-2189	2189-2190</
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or 1,146,215 acres will need intensive reworking. Control areas which have not been re-radiated, 2,292,027 acres; estimate 30 per cent pine plus an additional 20 per cent for protection zones. Re-radiation of 1,146,215 in section outside districts, estimate based on acreage of pure and mixed (30-70%) agents of coverage still needing initial eradication in each town in their district; and mixed (70-90%) pine outside present agent districts (Pine: estimates made by District initial control work on 1,146,215 acres including protection of pure

ELISTER RUST CONTROL IN NEW HAMPSHIRE

Acreage and Commercial Value of White Pine

	<u>Acreage</u>	<u>Value</u>
Pure white pine (80-100% pine) - (Over 6" DBH.....	263,526	\$29,514,912.
(Under 6" DBH.....	548,225	13,705,625.
Mixed white pine -(21-29% pine in mixture.....	296,439	8,300,292.
(30-79% pine in mixture.....	278,366	15,588,496.
Other types with scattered white pine stocking and restocking*.....	157,477	(1,102,339.-Pine stocking (258,695.-Restocking
White pine restocking in pure merchantable and mixed white pine types.....	239,081**	448,839.
Totals.....	1,544,033	\$68,919,198.

*Excludes those "other types" which have 1-20% pine (above restocking size), but do not contain white pine restocking.

**This acreage not included in total as it is already listed under pure and mixed white pine types.

Basis for estimating value of white pine: merchantable stumpage figured at normal value of \$7 per M - average volume per acre, pure merchantable white pine = 16 M bd.ft.; mixed white pine, 21-29% = 4 M bd.ft.; mixed white pine, 30-79% = 8 M bd.ft.; and white pine, above restocking size in other types = 1 M bd.ft. Pure stands of white pine under 6" DBH given normal value of \$25 per acre. Estimated normal per acre value of white pine restocking: , degree of restocking, light = \$1.00, medium = \$2.00, heavy - \$3.00.

Stumpage prices under present abnormal conditions range from \$2.00 to \$6.00 per thousand board feet. This is, however, a temporary situation which should return to normal when economic conditions improve.

Ribes Conditions

Ribes are generally distributed throughout the state being most abundant in the central, west central and northern portions. An average of 13.9 bushes per acre have been destroyed on the 3,214,205 acres cleared of Ribes in the state during the period 1918-1934, inclusive. In the southern part of the state, there are many sections where the bushes are so few and localized that they can be effectively eradicated by scouts.

Pine Infection Conditions

General in commercial pine range, especially severe in northern Connecticut River Valley region. Based on township units, the percentage of diseased pine ranges from 1 to 30 per cent of the total amount of pine. Also see strip line data given under "Blister Rust Surveys". Two especially heavy infection areas were located in unprotected tracts during the spring of 1929; one in the vicinity of Moose Mountain in the town of Hanover, and the other along the upper waters of Underwood Brook, situated in the northeastern part

QUESTIONS FOR THE JOINTED MEETINGS

Approved and Recommended for Release

Value	Quantity	Unit Price	Total
13.105.625	548,525	(Under 6" DBH)	13.105.625
899.514.912	548,525	(Over 6" DBH)	899.514.912
15.588.496	548,525	(30-72" pine in mixture)	15.588.496
15.588.496	548,525	(72-100" pine in mixture)	15.588.496
1.105.115	548,525	Other types with scattered white pine stocking and	1.105.115
558.597	548,525	Stocking	558.597
558.597	548,525	White pine stocking in pure hardwoods and	558.597
558.597	548,525	Mixed white pine types	558.597
558.597	548,525	Total	558.597

and mixed white pine types.
*This acreage not included in total as it is already listed under pure
larch, but do not contain white pine seedlings.

heavy - \$3.00.
value of white pine restocking; degree of restocking, light = \$1.00, medium = \$2.00,
white pine under 6" DBH given normal value of \$25 per acre. Estimated normal per acre
and white pine, above restocking size in other types = 1 M bd.ft. Pure stands of
light; mixed white pine, 21-25% = 4 M bd.ft.; mixed white pine, 26-50% = 8 M bd.ft.;
normal value of \$7 per M - average volume per acre, pure merchantable white pine = 16 M
basis for estimating value of white pine: merchantable stumpage figured at

Stumpage prices under present abnormal conditions range from \$2.00 to \$6.00 per thousand board feet. This is, however, a temporary situation which should return to normal when economic conditions improve.

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the bushes are no longer and localized that they can be effectively eradicated by agents. In the northern part of the state, there are many sections where 1912-1914, inclusive. In the southern part of the state, there are many sections where 3,214,805 acres cleared of Ribes in the state during the period 1912-1914, inclusive. An average of 15.9 bushes per acre have been generally distributed throughout the state being most abundant in the central, west central and northern portions.

These instructions should be followed:

and the other along the upper waters of Underwood Brook, situated in the northeast part of the town of Hancock. The species of *W. W.* was in the vicinity of Moose Mountain in the town of Hancock, "East Burroughs". The especially heavy infection areas were located in unprotected woods. 70 per cent of the total amount of pine. Also see strip line data given under "Hillside Valley section. Based on township units, the percentage of diseased pine ranges from 1 to 100 per cent in commercial pine range, especially severe in northern Connecticut River.

The state cooperates primarily with towns, paying 20 per cent of the total costs of the town projects. The control work is performed by state crews (paid from state and town funds) working systematically definite town blocks irrespective of property lines. Some cooperation is also obtained from individual owners. The state assists such persons by paying 20 per cent of the costs of control work. Because many of the backward towns had not cooperated, the state legislature passed a law in 1929 requiring towns to appropriate for blister rust control, amounts not to exceed \$400 in any one year, provided the state forester and the governor and his council demanded such action. Compulsory measures were applied for the first time in 40 towns during 1930. In 1931, the state law was applied in 30 towns which did not cooperate and in 10 additional towns where small voluntary appropriations were made. Due to economic conditions, this state law has not been enforced since 1932. During 1933 and 1934, the regular cooperative work was necessarily curtailed due to the activities conducted under the E.C.W., F.W.A., and C.W.A. Programs. All work carried on under these emergency programs was supervised by the district blister rust control agents.

Informational

Meetings addressed	1,859	Publications distributed*.....	183,853
Attendance.....	120,320	Mimeo. articles dist. (1928-1934).	64,465
Field demonstration meetings**.....	761	Items published.....	3,589
Attendance**.....	8,574	Fosters and signs placed*.....	19,837
Displays placed.....	1,735	Roadside dem. placed (1930-1934)***	32

work that has been performed to date in the Department is shown in Exhibit 10. A comparison can be made between the per acre cost of the re-education work and the per acre cost of all other eradication since there is a variation in the average involved and in the other sites examined. However, the data show that the re-education work

Initial interviews.....	26,662	Persons instructed in field....	15,661
Follow-up-calls.....	23,265		

*** " " "Displays placed" " " " " "

During the period 1918-1934, inclusive, a total of \$356,853.49 has been expended from 1129 town appropriations for blister rust control work, and 676 individual cooperators spent \$47,001.67 for similar work on their properties. In addition, 5 individuals expended

\$42.85 on Ribes eradication work during 1917. The town expenditures include \$847.94 for projects other than Ribes eradication during 1922, and the amount spent by individual co-operators includes \$172.28 on nursery sanitation from 1930-1934, inclusive.

Results of Ribes Eradication Work, 1918-1934, Inclusive*
(Initial and Re-eradication)

Program	Acreage Worked	Ribes Pulled		Cost					Per Acre	
		Wild	Cult.	State	Towns	Indiv.	Govt.	Total	Cost	Ribes
Regular	3,114,542	39,534,232	144,367	157639.14	356005.55	46829.39	60,932.25	621406.33	.200	12.7
E.C.W.	65,754	4,239,647	373	-	-	-	52,080.74	52080.74	.792	64.5
P.W.A.	33,909	994,200	-	-	-	-	19,976.00	19976.00	.589	29.3
Total	3,214,205	44,768,079	144,740	157639.14	356005.55	46829.39	132,988.99	693463.07	.216	13.9

*Excludes nursery sanitation work, 1930-1934, inclusive.

The expenditures by the Government under the Regular Program include \$59,460.63 B.P.I. money and \$1,471.62 spent by the Forest Service for work on the White Mountain National Forest.

Control work was conducted from 10 C.C.C. Camps during 1933 and 7 camps in 1934.

The cost of the Ribes eradication work includes wages of laborers, straw bosses, scouts, and foremen employed in locating and pulling Ribes - cost of crew transportation, and miscellaneous expenses for trail paper, picks, etc. In the case of the E.C.W. personnel, the cost of their total time on Ribes eradication work was figured at the rate of \$1.35 per eight hour man day in 1933 and \$1.40 in 1934.

Results of First Re-Eradication of Ribes, 1923-1934, Inclusive
(Excludes nursery sanitation work, 1930-1934, inclusive.)

Program	Acreage Re-Worked	Ribes Pulled		Total Cost	Per Acre	
		Wild	Cult.		Cost	Ribes
Regular	381,265	2,108,544	3371	\$49,733.58	.130	5.5
E.C.W.	13,328	566,174	-	7,407.97	.556	42.5
P.W.A.	37	5,629	-	60.55	1.64	152.1
Total	394,630	2,680,347	3371	\$57,202.10	.145	6.8

This re-eradication work in New Hampshire represents 26.3 per cent of all such work that has been performed to date in the Northeastern States. No satisfactory direct comparison can be made between the per acre cost of the re-eradication work and the per acre cost of all Ribes eradication since there is a variation in the acreage involved and in the Ribes sites examined. However, the data shows that the re-eradication work has cost on the average 14.5 cents per acre whereas the cost of the initial work in this state during the period 1918-1934, inclusive, average 22.6 cents per acre.

operator includes \$12.28 on nursery sanitation from 1930-1934, inclusive, and the amount spent by individual co-operators on Ribes eradication work during 1931. The town expenditures include \$84.94 for projects other than Ribes eradication during 1932, and the amount spent by individual co-operators on Ribes eradication work during 1931.

Summary of Ribes Eradication Work, 1930-1934, inclusive
(Initial and Re-eradication)

Acres	Ribes Eradicated	Cost			Total	Per Acre
		State	Town	Indiv.		
1,114.54	1,114.54	1,114.54	1,114.54	1,114.54	3,343.62	2.99
1,114.54	1,114.54	1,114.54	1,114.54	1,114.54	3,343.62	2.99
1,114.54	1,114.54	1,114.54	1,114.54	1,114.54	3,343.62	2.99
1,114.54	1,114.54	1,114.54	1,114.54	1,114.54	3,343.62	2.99
1,114.54	1,114.54	1,114.54	1,114.54	1,114.54	3,343.62	2.99
1,114.54	1,114.54	1,114.54	1,114.54	1,114.54	3,343.62	2.99
1,114.54	1,114.54	1,114.54	1,114.54	1,114.54	3,343.62	2.99
1,114.54	1,114.54	1,114.54	1,114.54	1,114.54	3,343.62	2.99
1,114.54	1,114.54	1,114.54	1,114.54	1,114.54	3,343.62	2.99

*Excludes nursery sanitation work, 1930-1934, inclusive.

The expenditures by the Government under the Ribes Eradication Program include \$59,460.63. \$3.1. money and \$1,471.62 spent by the Forest Service for work on the White Mountain National Forest.

Control work was conducted from 10 A.M. to 5 P.M. during 1933 and 7 camps in 1934.

The cost of the Ribes eradication work includes wages of laborers, first losses, and expenses, and for men employed in locating and pulling Ribes - cost of crew transportation, and miscellaneous expenses for trail paper, picks, etc. In the case of the U.S.W. personnel, the cost of their actual time as Ribes eradication work was figured at the rate of \$1.75 per eight hour man day in 1933 and \$1.40 in 1934.

Summary of Ribes Re-eradication Work, 1930-1934, inclusive
(Excludes nursery sanitation work, 1930-1934, inclusive.)

Acres	Ribes Re-eradicated	Cost			Total	Per Acre
		State	Town	Indiv.		
1,114.54	1,114.54	1,114.54	1,114.54	1,114.54	3,343.62	2.99
1,114.54	1,114.54	1,114.54	1,114.54	1,114.54	3,343.62	2.99
1,114.54	1,114.54	1,114.54	1,114.54	1,114.54	3,343.62	2.99
1,114.54	1,114.54	1,114.54	1,114.54	1,114.54	3,343.62	2.99
1,114.54	1,114.54	1,114.54	1,114.54	1,114.54	3,343.62	2.99
1,114.54	1,114.54	1,114.54	1,114.54	1,114.54	3,343.62	2.99
1,114.54	1,114.54	1,114.54	1,114.54	1,114.54	3,343.62	2.99
1,114.54	1,114.54	1,114.54	1,114.54	1,114.54	3,343.62	2.99
1,114.54	1,114.54	1,114.54	1,114.54	1,114.54	3,343.62	2.99

This re-eradication work in New Hampshire represents 26.7 per cent of all such work that has been performed to date in the Northeastern States. No satisfactory direct comparison can be made between the per acre cost of the re-eradication work and the per acre cost of all Ribes eradication since there is a variation in the acreage involved and in the Ribes eradicated. However, the data shows that the re-eradication work has cost on the average 14.5 cents per acre whereas the cost of the initial work in this State during the period 1918-1934, inclusive, average 25.6 cents per acre.

Results of Ribes Eradication Work on White Mountain National Forest, 1924-1934, Incl.

(These data are included in preceding Ribes eradication summaries)

Program	Type of Erad.	Acreage Worked	Ribes Pulled		Cost					Per Acre	
			Wild	Cult.	State	B.F.I.	Forest Service	E.C.W.	Total	Cost	Ribes
Regular	All										
	Initial	6,779	182,493	-	224.11	75.63	1471.62	-	1771.36	.261	25.9
E.C.W.	Initial	6,811	498,693	-	-	-	-	4751.90	4751.90	.698	73.2
	Re-Erad.	3,398	252,345	-	-	-	-	2310.07	2310.07	.680	74.3
	Total	10,209	751,038	-	-	-	-	7061.97	7061.97	.692	73.6
Total	Initial	13,590	681,186	-	224.11	75.63	1471.62	4751.90	6523.26	.480	50.1
	Re-Erad.	3,398	252,345	-	-	-	-	2310.07	2310.07	.680	74.3
	Total	16,988	933,531	-	224.11	75.63	1471.62	7061.97	8833.33	.520	54.9

The work under the Regular Program was conducted during the period 1924-1932. All control work during 1933 and 1934 was done by crews from several of the C.C.C. camps on this Forest. The results of this E.C.W. work include 300,149 wild Ribes removed from 5,035 acres covered on private lands during 1933, all but 68 acres of which was initial work. Some work was also performed on private lands during 1934, but no separate record was kept of such activities.

Status of Ribes Eradication Work - December, 1934

Program	Acreage of Control Area	Acreage of Control Area Worked	Percentage Control Area Worked*	Acreage Still in Need of Protection	Acreage of White Pine	
					Total in Control Area	Est. Acreage Protected
Initial	3,330,383	2,819,575	84.1	510,808	1,544,033	1,307,796
Re-Erad.	2,210,957	394,630	17.8	1,816,327	1,025,884	183,108

* The percentages are the same for the pine area protected.

The control area for the initial work comprises the acreage initially cleared of Ribes (pine area plus protection zones) to date plus the estimated acreage still in need of initial protection. The latter figure was obtained by estimates made by the agents for each town within their district.

The control area for the re-eradication program is based on the total area initially cleared of Ribes during the period 1913-1929, inclusive, or on the assumption that all areas initially worked prior to five years ago, now need re-examination for Ribes.

The total pine acreage in the initial control area includes the total pine acreage in the state based on figures secured from the 1927 cartographical survey. The acreage of pine protected, therefore, amounts to the same proportion of the total pine area as that percentage of the total control area that has been initially cleared of Ribes. The same proportion was used in compiling the pine acreages for the re-eradication work.

The work under the Federal Program was conducted during the period 1950-1952. All control work during 1952 and 1953 was done on areas from several of the C.G.C. areas on Lake Powell. The results of this E.C.W. work include 300,149 wild Ribes removed from 1,005 acres covered on private lands during 1953, all but 68 acres of which was initial work. This work was also performed on private lands during 1954, but no separate record was kept of such activities.

The present study was the same for the pine areas protected. The control area for the initial work comprised the average rainfall cleared of Pines (pine areas are protected as a reserve) to date give the estimated average still in use of initial protection. The latter figure was obtained by estimates made by the agents for each town within their district.

[illegible]

Nursery SanitationStatus of Nursery Sanitation Work - December, 1934

	Number White Pine Growing Nurseries				Number Protected From Blister Rust			
	Reforestation Only	Ornamental Only	Both	Total	Reforestation Only	Ornamental Only	Both	Total
Commercial nurseries	-	2	2	4	-	2	2	4
State nursery	1	-	-	1	1	-	-	1
Total	1	2	2	5	1	2	2	5

All the white pine growing nurseries in the state have been examined for Ribes. The state nursery at Gerrish, the Keene Forestry Association Nursery at Keene, and the Fryeburg Nursery at Conway have been conducting initial and re-eradication work around their properties for years. In spite of this, considerable pine infection was found during 1928 in the Keene Nursery, where a difficult skunk current situation exists. As a result, this nursery destroyed 30,000 white pine transplants and also arranged for a reinspection of the nursery and its environs for Ribes. A single pine infection was also discovered at the state nursery during 1928. An examination of the environs of this nursery during the fall of 1932 resulted in the location of several Ribes. The control areas surrounding this nursery were re-examined for Ribes during 1933.

Results of Ribes Eradication Work in Connection with Nursery Sanitation Project (1930-1934)

Acreage Worked (All re-eradication)	Ribes Pulled		Total Cost	Per Acre	
	Wild	Cult.		Cost	Ribes
1327	7647	0	\$480.99	\$.362	5.8

Since 1930, a separate record has been kept of the nursery sanitation work and these data have not been included in the regular eradication summaries. An incomplete summary supplied by the state leader for the period 1925-1929, inclusive shows that 920 acres were cleared of 3380 wild and 45 cultivated Ribes at a total cost of \$424.18. Of this total, 805 acres were re-eradication work, 3351 wild and 45 cultivated bushes being eradicated at a cost of \$407.62. No data are available for any of the work performed prior to 1925.

Black Currant Eradication

The town control policy in New Hampshire systematically eliminates cultivated Ribes from all white pine regions; therefore, no special general campaign is needed to eradicate black currants. Most of the initial eradication work has been completed in the section of the state where the greater portion of black currants existed.

Summary Statistics

Results of Nursery Evaluation Work - December, 1934

Nursery	Total Plants Growing			Plants Protected from Winter Injury		
	Only	Only	Total	Only	Only	Total
Commercial	-	2	2	-	2	2
State	1	-	1	-	-	-
Total	1	2	3	-	2	2

All the white pine growing nurseries in the state have been examined for Ribes. The state nursery at Jackson, the Keene Forestry Association nursery at Keene, and the Wyburn nursery at Conway have been conducting initial and re-eradication work around their properties for years. In spite of this, considerable pine infection was found during 1933 in the Keene nursery, where a difficult winter current situation exists. As a result, this nursery destroyed 30,000 white pine transplants and also arranged for a re-eradication of the nursery and its environs for Ribes. A single pine infection was also observed at the state nursery during 1934. An examination of the environs of this nursery during the fall of 1935 resulted in the location of several Ribes. The control work surrounding this nursery was re-examined for Ribes during 1935.

Results of Ribes Eradication Work in Connection with Nursery Evaluation Project (1930-1934)

Nursery	Ribes Eradication		Total Cost		Per Acre	
	Cost	Plants	Cost	Plants	Cost	Plants
State	\$50.00	0	\$50.00	0	\$50.00	0

Since 1930, a separate record has been kept of the nursery sanitation work and these data have not been included in the regular eradication summaries. An incomplete summary compiled by the state leader for the period 1932-1933, inclusive shows that 250 acres were treated at a cost of \$100.00 and 45 cultivated Ribes at a total cost of \$124.18. Of this total, 605 acres were re-eradication work, 3551 white and 45 cultivated bushes destroyed. No data are available for any of the work performed since 1933.

Black Current Eradication

The most control policy in New Hampshire systematically eliminates cultivated Ribes from all white pine regions; therefore, no special control measures are needed to eradicate black current. Most of the initial eradication work has been completed in the section of the state where the greatest portion of black current existed.

Cultivated Ribes Compensation, 1918-1934

Total number of cultivate bushes destroyed.....	144,740
Number of bushes for which compensation was paid.....	2,008
Number of persons paid compensation.....	63
Amount paid in reimbursement.....	\$550.60

Surveys

Because of the general distribution of white pine, a special mapping of such areas is not necessary, especially as the epidemiology study gave town information on white pine and other forest types, Ribes and infection conditions. During 1919, detailed forest type maps were made of the towns of Dover and Kensington - this work developed effective methods of mapping and estimating, and the data were used also for control work and informational purposes. In 1924, the State Forestry Department completed a forest resource survey, which showed 50 per cent of the wood products in New Hampshire were made of white pine. The annual cut of this species varies from 55 to 65 per cent of the total lumber cut in the state. Strip line infection surveys were made in 1920 - the pines on rod wide strips, totaling 54.5 miles in length, were examined - a total of 9,919 pines were inspected, and 13 per cent were found infected - 213 plots, totaling 49.1 acres, were laid out adjacent to the strips; 51.5 per cent of the 7,014 pines in these plots were diseased. During 1928, a survey was made in 69 backward towns to locate and map the minimum control area, which should be cleared of Ribes to protect the pine. Partly as a result of the facts obtained by this survey, over 30 per cent of these towns appropriated for control work in 1929. Similar work was conducted in other towns during 1931 and 1932. It resulted in complete data being secured, by township units, on the remaining acreage still needing initial protection. During 1933 and 1934, pine and control area mapping was carried on under the Regular, P.W.A., and E.C.W. Programs. A total of 172,311 acres was mapped in detail and an additional 16,255 acres was examined but not mapped due to lack of sufficient pine to justify control measures. These mapping projects required 2961 man days labor.

Investigations

Demonstration control areas established at Conway and Wolfeboro - latter area rechecked during 1927 - detailed infection studies made by Endersbee at Hooksett, Hampstead, Sunapee, and Littleton - (reports submitted); by Posey, at Deerfield and Lisbon - (no report); by Richards, at Temple - (preliminary report only). Many damage and demonstration plots laid out by agents - used for informational purposes. Ribes regrowth study made by Newman at New market - (no report submitted). During 1929 and 1934, effectiveness of control studies were made by the district agents. These data were summarized at the Boston Office, and copies of the summaries sent to the state leader and Washington Office to be used for informational purposes. Chemical eradication study plots have been established in Baker's and Swain's districts. Five of the New Hampshire agents are cooperating in the study to determine the immunity of the Viking currant to blister rust infection.

Effectiveness of Blister Rust Control

During 1934, plot and strip line studies were made to determine the amount of blister rust infection on white pines in protected and unprotected areas in New Hampshire. The disease had existed in these tracts since 1914. Ribes eradication in

Collected Data Summary, 1911-1914

1914, 1910	Total number of sensitive bushes destroyed.....
2,008	Number of bushes for which compensation was paid.....
19	Number of bushes paid compensation.....
1914, 1910	Amount paid in compensation.....

Summary

Because of the general distribution of white pine, a special mapping of such areas is not necessary, especially as the epidemiology study gave town information on white pine and other forest types, sizes and infection conditions. During 1912, detailed forest type maps were made of the towns of Dover and Kennington - this work developed effective methods of mapping and estimating, and the data were used also for control work and informational purposes. In 1914, the State Forestry Department completed a forest resource survey, which showed 50 per cent of the white pine forest in New Hampshire were made of white pine. The annual cut of this species varies from 25 to 65 per cent of the total lumber cut in the state. Strip line infection surveys were made in 1910 - the first on red white stripes, totaling 74.5 miles in length, were examined - a total of 9,919 pines were inspected, and 17 per cent were found infected. 217 plots, totaling 4.1 acres, were laid out adjacent to the strip; 31.5 per cent of the 1,014 pines in these plots were diseased. During 1912, a survey was made in 69 backward towns to locate and map the minimum control areas, which should be cleared of pines to protect the pine. Partly as a result of the facts obtained by this survey, over 50 per cent of these towns appropriated for control work in 1913. Similar work was conducted in other towns during 1911 and 1912. It resulted in complete data being secured, 24 township maps, on the mapping survey still needing initial processing. During 1913 and 1914, pine and control area maps were carried on under the Regular, P.W.A., and E.C.W. Programs. A total of 172,311 acres was mapped in detail and an additional 16,295 acres are examined but not mapped due to lack of sufficient pine to justify control measures. These mapping projects required 2901 man days labor.

Investigation

Demonstration control areas established at Conway and Wolfeboro - latter area rechecked during 1913 - detailed infection studies made by Underwood at Hooksett, (reported, Wages, and Station - (reports submitted); by Town, at Hartfield and (no report); by Richardson, at Temple - (preliminary report only). Many damage and demonstration plots laid out by agents - used for informational purposes. White pine study made by Newman at Newmarket - (no report submitted). During 1912 and 1913, effectiveness of control studies were made by the district agents. These data were summarized at the Boston Office, and copies of the summaries sent to the State Lumber and Washington Office to be used for informational purposes. Chemical eradication study plots have been established in Dover and Berlin districts. Five of the New Hampshire agents are cooperating in the study to determine the immunity of the white pine to blister rust infection.

Effectiveness of Blister Rust Control

During 1914, plot and strip line studies were made to determine the amount of blister rust infection on white pines in protected and unprotected areas in New Hampshire. The disease had existed in these tracts since 1914. Pines eradicated in

the control areas had been performed during the period 1924-1929, inclusive. In protected areas, 8 plots, comprising 4 acres, were laid out in 5 towns and the white pines were examined carefully for infection. Out of a total of 2,698 pines, 833, or 30.9%, were infected with 1,132 cankers. However, only 27 of these cankers or 2.4%, originated since the application of control measures, even though the protection work had been conducted 5 to 10 years previous. Infection conditions in protected areas were also determined in 18 towns by examining all pines under 20 feet in height on 10.5 miles of rod-wide strip lines. A total of 38% of the 10,856 pines on the strips were infected with 6,028 cankers, but only 2.6% of these infections had originated since the control work was performed.

In unprotected areas, studies were made during 1934 in 16 plots in 14 towns. The plots comprised 6½ acres. Blister rust had infected 2,300 white pines, or 57.5% of the 3,998 trees of this species. Most of the 4,566 cankers were of recent origin. In fact, over 39% of them originated during the period 1928 to 1932, which shows the danger of delaying protection work.

Total Cost of All Blister Rust Control Work, 1918-1934, Inclusive

State BR Approp.	Other State Approp.	Towns	Indiv.	B.F.I.	Forest Service	B.C.W.	P.W.A.	Total
\$47,550.08	20,999.97	356,853.49	47,001.67	434,415.50	1946.91	78,553.95	51,642.01	1,238,963.58

The total expenditures for all control work include cost of administration, supervision, blister rust control agent activities, Ribes eradication checkers, field investigations, nursery sanitation, Ribes compensation, and miscellaneous.

Relation of Total Cost of All Control Activities to Total Commercial Value of White Pine

Acreage of White Pine	Commercial Value of White Pine	Total Cost of All Control Activities 1918-1934*	Per Cent of Total Com- mercial Value Repre- sented by Cost of All Control Work
1,544,033	\$68,919,198.	\$1,238,963.58	1.8

*Includes cost of work on White Mountain National Forest.

Comparison of Cost Per Acre Based on Ribes Eradication Costs Only and on Cost of All Control Projects, 1918-1934, Inclusive
(White Mountain National Forest Project Included)

Ribes Per Acre	Cost Per Acre							
	Based on Ribes Eradication Costs Only				Based on Total Expenditures			
	1918-1934		Ave. Per Year		1918-1934		Ave. Per Year	
	Total Area Worked	Pine Area Protected	Total Area Worked	Pine Area Protected	Total Area Worked	Pine Area Protected	Total Area Worked	Pine Area Protected
13.9	.216	.465	.013	.027	.385	.831	.023	.049

The control work has been continuing during the period 1930-1934, inclusive. In previous years, a total of 10,856 acres, were laid out in 5 towns and 10 white pine areas were examined carefully for infection. Out of a total of 2,038 acres, 817, or 39.9%, were infected with blister cankers. However, only 27 of these cankers or 2.4%, originated since the application of control measures, even though the protection work had been continued for 12 years previous. Infection conditions in protected areas were also determined in 14 towns by examining all pines under 25 feet in height on 10.9 miles of road-side strip lines. A total of 384 of the 10,856 pines on the strips were infected with blister cankers, but only 2.6% of these infections had originated since the control work was performed.

In unprotected areas, studies were made during 1934 in 16 plots in 14 towns. The plots comprised 64 acres. Blister rust had infected 2,300 white pines, or 57.5% of the 3,998 trees of this species. Most of the 4,500 cankers were of recent origin. In fact, over 70% of them originated during the period 1928 to 1932, which shows the danger of delaying protection work.

Total Cost of All Blister Rust Control Work, 1918-1934, inclusive

Other State	Towns	Indian	S.F.I.	Service	E.C.E.	F.W.A.	Total
20.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00

The total expenditures for all control work include cost of administration, supervision, blister rust control agent activities, blister rust infection checks, field investigation, forestry sanitation, blister compensation, and miscellaneous.

Comparison of Total Cost of All Control Activities to Total Commercial Value of White Pine

Acres of White Pine	Commercial Value of White Pine	Total Cost of All Control Activities 1918-1934*	Per Cent of Total Commercial Value Represented by Cost of All Control Work
1,400,000	\$5,250,000	\$1,000,000	1.9

*includes cost of work on White Mountain National Forest.

Comparison of Cost per Acre Based on Blister Infection Costs Only and on Cost of All Control Projects, 1918-1934, inclusive (White Mountain National Forest Project Included)

Year	Total Area Blister Infected	Total Area Protected	Cost per Acre	
			Based on Blister Infection Costs Only	Based on Total Expenditures
1918-1934	10.00	10.00	10.00	10.00
Ave. Per Year	10.00	10.00	10.00	10.00
1918-1934	10.00	10.00	10.00	10.00
Ave. Per Year	10.00	10.00	10.00	10.00

Future Work

Complete initial Ribes eradication 510,808 acres, (basis: revised estimates in 1934 by agents of total acreage to be worked in each town - including both pine areas and protection strips) - Re-examination of 1918-1929 initial control areas that have not already been reworked, 1,816,327 acres; estimate 50 per cent, or 908,163 acres, will need to be reworked by crew methods.

Re-examine pine (21-24) area in 1935... 1,816,327

1,816,327

Under type with scattered pine... 1,816,327

1,816,327

White pine re-examination... 1,816,327

1,816,327

Re-examine Ribes & other types... 1,816,327

Re-examine Ribes & other types... 1,816,327

Re-examine Ribes & other types... 1,816,327

Re-examine Ribes & other types... 1,816,327

Re-examine Ribes & other types... 1,816,327

Re-examination of Ribes

Re-examine Ribes & other types... 1,816,327

Summary

Complete initial river examination 210,000 acres, (area: 210,000 acres) in 1972. A series of local projects to be started in each town - including both 1972 and 1973. (The 1972-1973 initial control areas are not yet started.) - Examination of 1972-1973 initial control areas. That have not already been covered, 1,110,000 acres; estimate 50 per cent, for 1974. 1974 area, 111,000 acres, will need to be covered in other methods.

The 1972-1973 initial control areas are not yet started. The 1972-1973 initial control areas are not yet started. The 1972-1973 initial control areas are not yet started.

1972-1973 initial control areas are not yet started.

The 1972-1973 initial control areas are not yet started.

The 1972-1973 initial control areas are not yet started.

BLISTER RUST CONTROL IN VERMONT

Acreage and Commercial Value of White Pine

	Acreage	Value
Pure white pine (80-100% pine) - Over 6" DBH.....	29,923	\$ 3,351,376.
Under 6" DBH.....	73,453	1,836,325.
Mixed white pine { 21-29% pine in mixture.....	78,415	2,195,620.
{ 30-79% pine in mixture.....	160,147	8,969,232.
Other types with scattered white pine stocking and restocking*.....	225,146	(1,576,022.-Pine stocking (291,793.-Restocking
White pine restocking in pure merchantable and mixed white pine types.....	71,587**	120,486.
Totals.....	567,084	\$18,339,854.

*Excludes those "other types" which have 1-20% pine (above restocking size), but do not contain white pine restocking.

**This acreage not included in total as it is already listed under pure and mixed white pine types.

Basis for estimating value of white pine: merchantable stumpage figured at normal value of \$7 per M - average volume per acre, pure merchantable white pine = 16 M bd. ft.; mixed white pine, 21-29% = 4 M bd.ft.; Mixed white pine, 30-79% = 8 M bd.ft.; and white pine, above restocking size in other types = 1 M bd.ft. Pure stands of white pine under 6" DBH given normal value of \$25 per acre. Estimated normal per acre value of white pine restocking: degree of restocking, light = \$1, medium = \$2, heavy = \$3.

Stumpage prices under present abnormal conditions range from \$2 to \$6 per thousand board feet. This is however, a temporary situation which should return to normal when economic conditions improve.

Ribes Conditions

Ribes are generally distributed throughout the state, occurring in greatest numbers in the Connecticut River Valley, in the Champlain Valley, and in a belt extending across the north-central part of the state. An average of 11.9 bushes per acre have been eradicated on the 277,135 acres worked to date.

Pine Infection Conditions

General throughout the commercial pine range of state, being especially severe in northern Connecticut River Valley region - based on town units, the per cent of diseased pine ranges from 1-30 per cent of the total amount of pine-- also, see strip line data under "Surveys". Considerable new infection occurred in unprotected areas during recent years.

BILSTER RUST CONTROL IN VERMONT

Summary of Commercial Value of White Pine

Pure white pine (80-100% pine) - Over 60 DBH	11,923	11,923
Mixed white pine (50-80% pine) - Over 60 DBH	11,923	11,923
Other types with scattered white pine stocking and restocking*	325,146	325,146
White pine restocking in pure merchantable and mixed white pine types	11,587**	11,587**
Total	130,486	130,486

*Excludes those "other types" which have 1-50% pine (above restocking size), but do not contain white pine restocking.
 **This acreage not included in total as it is already listed under pure and mixed white pine types.

Basis for estimating value of white pine: merchantable stumpage figured at normal value of \$7 per M - average volume per acre, pure merchantable white pine = 10 cu. ft.; mixed white pine, 21-29% = 4 M cu. ft.; mixed white pine, 30-49% = 8 M cu. ft.; and white pine, above restocking size in other types = 1 M cu. ft. Pure stands of white pine under 6" DBH given normal value of \$25 per acre. Estimated normal per acre value of white pine restocking: degree of restocking, light = \$1, medium = \$2, heavy = \$3.

Stumpage prices under present abnormal conditions range from \$2 to \$6 per thousand board feet. This is however, a temporary situation which should return to normal prices under normal conditions.

Pine Conditions

Pines are generally distributed throughout the state, occurring in greatest numbers in the Connecticut River Valley, in the Champlain Valley, and in a belt extending across the north-central part of the state. An average of 11.9 bushes per acre have been eradicated on the 277,175 acres worked to date.

Pine Infection Conditions

General throughout the commercial pine range of state, being especially severe in northern Connecticut River Valley region - based on town units, the per cent of infected pine ranges from 1-50 per cent of the total amount of pine - also, see strip line data under "surveys". Considerable new infection occurred in unprotected areas during recent years.

Policy

State cooperates with individual owners, who pay all eradication costs, except excess labor charges for state foremen and their transportation between jobs. In a few instances, town money has been obtained to pay the excess labor charges. During 1933 and 1934, the regular cooperative work was necessarily curtailed due to the activities conducted under the E.C.W. and P.W.A. Programs. All work conducted under these emergency programs was supervised by the district blister rust control agents.

Informational and Service Activities of Permanent and Temporary Agents, 1927-1934

Informational

Meetings addressed.....	380	Publications distributed*.....	30,653
Attendance.....	18,242	Mimeo. articles dist.(1928-1934)*..	192
Field demonstration meetings**.....	387	Items published.....	457
Attendance**.....	4,556	Posters and signs placed*.....	7,561
Displays placed.....	553	Roadside dem. placed (1930-1934)***	16

Service

Initial interviews.....	9,980	Persons instructed in field.....	8,145
Follow-up calls.....	6,672		

*No record kept of these items after April 30, 1934

**Included with "Meetings Addressed" after April 30, 1934

***Included with "Displays Placed" after April 30, 1934

Town and Individual Cooperation in Blister Rust Control Work

During the period 1918-1934, inclusive, a total of \$1,197.91 was expended from 14 town appropriations made for control work, and 2304 individual cooperators spent \$71,209.37 for similar work on their properties. The individual expenditures include \$86.25 spent during 1926 and 1933 for Ribes compensation to 10 owners for the removal of 181 cultivated bushes.

Results of Ribes Eradication Work, 1918-1934, Inclusive (Initial and Re-eradication)

Program	Acreage Worked	Ribes Pulled		Cost					Per Acre	
		Wild	Cult	State	Towns	Indiv.	Govt.	Total	Cost	Ribes
Regular	224,526	2,296,089	11,119	16,439.13	1077.91	71,123.12	6,147.15	94,787.31	.422	10.2
E.C.W.	27,892	551,368	53	-	-	-	23,744.30	23,744.30	.851	19.8
P.W.A.	24,717	461,082	-	20.00	120.00	-	18,807.73	18,947.73	.767	18.7
Total	277,135	3,308,539	11,172	16,459.13	1197.91	71,123.12	48,699.18	137,479.34	.496	11.9

This summary excludes the special nursery sanitation work during the period 1930-1934 inclusive, when a separate record was kept of such control work.

The cost of the Ribes eradication projects includes owners' labor (valued at 40 cents per hour) and actual expenditures by all agencies for wages of laborers, scouts, and foremen employed in locating and pulling Ribes- cost of crew transportation, and miscellaneous expenses for trail paper, picks, etc.

Control was conducted from 7 C.C.C. camps during 1933 and 6 camps in 1934.

Policy

State cooperatives with individual owners, who pay all eradication costs, except excess labor charges for state foremen and their transportation between jobs. In a few instances, town money has been obtained to pay the excess labor charges. During 1933 and 1934, the regular cooperative work was necessarily curtailed due to the activities conducted under the E. I. U. and I. W. O. Programs. All work conducted under these emergency programs was supervised by the district blaster and control agents.

Informational and Service Activities of Permanent and Temporary Agents, 1933-1934

Informational

Meetings addressed.....	780	Publications distributed*.....	30,653
Attendance.....	18,245	Mimeo articles dist. (1933-1934)*..	192
Field demonstration meetings*.....	387	Items published.....	157
Attendance*.....	4,556	Posters and signs placed*.....	7,561
Displays placed.....	553	Boards placed (1930-1934)**	16

Service

Initial interviews.....	9,980	Persons interviewed in field.....	8,105
Follow-up calls.....	5,675		

*No record kept of these items after April 30, 1934
 **Included with "Meetings Addressed" after April 30, 1934
 ***Included with "Displays Placed" after April 30, 1934

Town and Individual Cooperation in Blaster and Control Work

During the period 1918-1934, inclusive, a total of \$1,197.91 was expended for blaster and control work, and 2304 individual cooperators spent \$71,509.37 for similar work on their properties. The individual expenditures include \$86.25 spent during 1926 and 1933 for Ribes compensation to 10 owners for the removal of 181 cultivated bushes.

Summary of Ribes Eradication Work, 1918-1934, Inclusive (Initial and Re-eradication)

Totals	Crews	Ribes Killed	Cost			Per Acre
			State	Town	Indiv.	
277,135	27,892	27,892	20.00	150.00	13,807.73	12.7
16,459.13	521,368	521,368	-	-	51,744.70	19.8
16,459.13	2,598,069	2,598,069	11,127.12	6,147.12	94,787.31	10.8
32,978.26						

This summary includes the special nursery sanitation work during the period 1930-1934 inclusive, when a separate record was kept of such control work. The cost of the Ribes eradication projects includes owners' labor (valued at 10 cents per hour) and actual expenditures by all agencies for wages of laborers, scouts, and foremen employed in locating and pulling Ribes - cost of crew transportation, and miscellaneous expenses for trail paper, picks, etc. Control was conducted from 7 C.C.C. camps during 1933 and 6 camps in 1934.

Results of First Re-eradication of Ribes, 1923-1934, Inclusive
(Excludes nursery sanitation work, 1930-1934, inclusive)

Program	Acreage Re-Worked	Ribes Pulled		Total Cost	Per Acre	
		Wild	Cult.		Cost	Ribes
Regular	32,627	159,163	833	\$10,667.76	.327	4.9
E.C.W.	12,445	239,951	3	11,779.93	.946	19.3
P.V.A.	8,414	105,888	-	5,712.69	.679	12.6
Total	53,486	505,002	836	28,160.38	.527	9.4

No direct comparison is practicable between the per acre cost of the re-eradication work and the corresponding cost of all work since there is a variation in the acreage involved and consequently in the sites examined.

Status of Ribes Eradication Work - December, 1934

Program	Acreage of Control Area	Acreage of Control Area Worked	Percentage of Control Area Worked*	Acreage Still in need of Protection	Acreage of White Pine	
					Total in Control Area	Est. Acreage Protected
Initial	371,426	223,649	60.2	147,777	120,782	72,711
Re-Erad.	164,040	53,486	32.6	110,554	53,313	17,383

*The percentages are the same for the pine area protected.

The total control area for the initial work comprises the acreage initially cleared of Ribes to date plus the estimated acreage still in need of initial protection. the latter figure is based on estimates made by the agents of the acreage still in need of initial protection in each town of their districts.

The control area for the re-eradication program is based on the total area initially cleared of Ribes during the period 1918-1929, inclusive, or on the assumption that all areas worked prior to five years ago now need re-examination for Ribes.

The acreage of white pine in the control area was estimated to comprise 40 per cent of the entire area. Likewise, the acreage of pine protected was assumed to represent 40 per cent of the worked portion of the control area.

Nursery Sanitation

Exclusive of the state nursery, which has been protected from blister rust, there are only two commercial nurseries growing white pines and each of these nurseries contain less than 100 ornamental pines.

Ribes Eradication Work at the Essex Junction State Nursery, 1930-1934, Inclusive

Acreage Worked (All re-eradication)	Ribes Pulled		Total Cost	Per Acre	
	Wild	Cult.		Cost	Ribes
1,150	3,040	0	\$829.44	.721	2.6

Results of White Pine Re-examination of Ribes, 1937-1939, Inclusive
(Excludes nursery sanitation work, 1930-1934, inclusive)

Location	Re-examined	White Pine	White Pine	Total Cost	Per Acre
Control	25,486	505,002	435	28,160.38	.527
Initial	25,486	105,388	-	25,712.62	.619
Re-examined	12,445	210,351	3	11,779.92	.906
Control	25,486	156,167	877	\$10,667.76	.757
Total	63,417	871,803	1,315	\$10,667.76	.757

No direct comparison is practicable between the per acre cost of the re-examination work and the corresponding cost of all work since there is a variation in the acreage involved and consequently in the sites examined.

States of Ribes Eradication Work - December, 1939

Program	Control Area	Control Area	Percentage of Control Area Worked*	Acreage Still in need of Protection	Total in Control Area Protected	Acreage of White Pine
Initial	25,486	22,649	60.2	187,177	150,182	15,711
Re-examined	12,445	22,649	72.6	110,550	22,312	17,382

*The percentages are the same for the pine area protected.

The total control area for the initial work comprises the acreage initially cleared of Ribes to date plus the estimated acreage still in need of initial protection. The latter figure is based on estimates made by the agents of the acreage still in need of initial protection in each town or their districts.

The control area for the re-examination program is based on the total area initially cleared of Ribes during the period 1918-1929, inclusive, or on the assumption that all areas worked prior to five years ago now need re-examination for Ribes.

The acreage of white pine in the control area was estimated to comprise 40 per cent of the entire area. Likewise, the acreage of pine protected was assumed to represent 40 per cent of the worked portion of the control area.

Nursery Sanitation

Exclusive of the state nursery, which has been protected from blight, there are only two commercial nurseries growing white pines and each of these nurseries contains less than 100 ornamental pines.

Ribes Eradication Work at the Forest Junction State Nursery, 1937-1939, Inclusive

White Pine	White Pine	Total Cost	Per Acre
3,040	0	\$229.44	.721
			2.6

Since 1930, a separate record has been kept of all nursery sanitation work and the data have not been included in the regular Ribes eradication summaries. Due to the fact that the available data are incomplete for such control work prior to 1930 no accurate total summary can be made for this project. However, a summary (based on estimates in some instances) supplied by the assistant state forester shows that during the period 1925-1929, a total of 700 acres were reworked at this nursery at a cost of \$479.64. Only five wild Ribes were found. During 1930, this nursery was granted a permit to ship white pines interstate under regulations specified in Federal Quarantine 63. This permit was revoked in 1932 when a few Ribes were located within the 1500 foot sanitation zone.

Black Currant Elimination

A systematic black currant survey was begun in the agents' districts during the fall of 1928 and continued during 1929. Such work has been completed in 20 towns and partially finished in 3 additional towns. A total of 224 Ribes nigrum were located and 183 destroyed. Black currant elimination work has not been conducted as a special project in Vermont since 1929.

Cultivated Ribes Compensation

Total number of cultivated Ribes destroyed.....	11,172
Total number of bushes paid for.....	1,594
Number of persons paid compensation.....	128
Amount paid in reimbursement.....	\$766.91

These data include \$86.25 compensation paid by individual cooperators to 10 owners of cultivated Ribes for the removal of 181 bushes.

Surveys

(1) White pine areas of state - roughly mapped during early years of control program. (2) Strip line infection survey made in 1920. The pines on road wide strips totaling 28 miles in length were examined - a total of 4,002 pines was inspected and 3.1 per cent found diseased. (3) Production, value, and use of white pine and other woods - data summarized for entire state, and published in bulletin form. (4) Epidemiology survey of white pine and other forest types, Ribes and infection conditions made during 1926. Maps and summaries prepared at Boston Office. (5) During 1933 and 1934, detailed pine and control area mapping was conducted during the late fall, winter, and early spring months under the P.W.A. and E.C.W. Programs. Such mapping activities resulted in 163,444 acres being mapped in detail, and an additional 186,600 acres were examined but not mapped due to lack of sufficient pine to justify the cost of control work. This mapping work during 1933 and 1934 required 989 man days of labor.

Investigations

Demonstration control areas at Thetford and Fairlee, Vermont - preliminary reports submitted - no follow-up work done. Ribes regrowth studies made by Merrill, and reported at 1927 annual conference. Blister rust damage study of merchantable pine made by Filler at Waterford, Vermont - report prepared and published. During 1927, six quarter-acre infection plots laid out by agents. Also, in cooperation with extension forester, six permanent demonstration plots were established to show

During 1930, a separate record was kept of all nursery sanitation work and the data have not been included in the regular Ribes eradication summaries. Due to the fact that the available data are incomplete for such control work prior to 1930, no accurate total summary can be made for this project. However, a summary (based on estimates in our records) applied to the Ribes eradication work at that time is as follows: During 1929, a total of 700 acres were reworked at this nursery at a cost of \$17,500. Only five wild Ribes were found. During 1930, this nursery was granted a permit to sell white pine seedlings under inspection in Federal Quarantine. This permit was renewed in 1931 when a few Ribes were located within the 1930 seed sanitation work.

Black Current Elimination

A systematic black current survey was begun in the agency's districts during the fall of 1928 and continued during 1929. Such work has been completed in 20 towns and partially finished in 3 additional towns. A total of 224 Ribes nigrum were located and 183 destroyed. Black current elimination work has not been conducted as a special project in Vermont since 1929.

Cultivated Ribes Compensation

Total number of cultivated Ribes destroyed.....	11,172
Total number of bushes paid for.....	1,294
Number of persons paid compensation.....	123
Amount paid in reimbursement.....	\$766.91

These data include \$86.75 compensation paid by individual cooperators to 10 owners of cultivated Ribes for the removal of 181 bushes.

Surveys

(1) White pine areas of state - nearly mapped during early years of control system. (2) Strip inspection survey made in 1920. The lines on red white stripes totaling 20 miles in length were examined - a total of 4,002 pines were inspected and 1.1 per cent found diseased. (3) Production, value, and use of white pine and other woods - data summarized for entire state, and published in bulletin form. (4) Ribes survey of white pine and other forest types. Ribes and infection conditions were noted in 1925. Maps and summaries prepared at Forest Office. (5) Survey 1927 and 1928. Detailed pine and control area mapping was conducted during the late fall, winter, and early spring months under the F.W.A. and F.C.V. programs. Such mapping activities resulted in 151,444 acres being mapped in detail, and an additional 150,500 acres were examined but not mapped due to lack of sufficient pine to justify the cost of control work. This mapping work during 1927 and 1928 required 929 man days of labor.

Investigations

Demonstration control areas at Thetford and Fairlee, Vermont - preliminary reports submitted - no follow-up work done. Ribes removal studies made by Merrill, and reported in 1927 annual summary. Ribes removal studies of merchantable pine made by Miller at Thetford, Vermont - report prepared and published. During 1927, six quarter-acre infection plots laid out by Merrill. Also, in cooperation with extension forester, six permanent demonstration plots were established to show

white pine thinning and protection. Seven additional demonstration plots^{in 6 towns} were laid out in 1928. During the fall of 1928 and spring of 1929, pine infection studies were made by the agents in 14 Vermont towns to determine the effectiveness of the control work. These data were summarized at the Boston Office and copies of the summaries sent to the Forestry Commissioner and to the Washington Office to be used for informational purposes. Additional effectiveness of control and blister rust damage studies were made by Agent Rose during the fall and winter of 1932-1933, and in 1934.

Total Cost of All Blister Rust Control Work, 1918-1934, Inclusive.

State BR Approp.	Towns	Indiv.	B.P.I.	E.C.W.	P.W.A.	Total
\$52,994.04	1,197.91	71,209.37	119,398.94	34,216.70	29,303.01	\$308,319.97

The total expenditures for all control work include cost of administration, supervision, blister rust control agent activities, Ribes eradication, field investigations, nursery sanitation, black current elimination, Ribes compensation, and miscellaneous.

Relation of Total Cost of All Control Activities to Total Commercial Value of White Pine

Acreage of White Pine	Commercial Value of White Pine	Total Cost of All Control Activities, 1918-1934, Incl.	Percent of Total Commercial Value Represented by Cost of All Control Work
567,084	\$18,339,854.	\$308,319.97	1.7

Comparison Between Cost Per Acre Based on Ribes Eradication Costs Only and on Cost of All Control Projects, 1918-1934, Inclusive.

Ribes Per Acre	Cost Per Acre							
	Based on Ribes Eradication Costs Only				Based on Total Expenditures			
	1918-1934		Ave. Per Year		1918-1934		Ave. Per Year	
	Total Area Worked	Pine Area Protected	Total Area Worked	Pine Area Protected	Total Area Worked	Pine Area Protected	Total Area Worked	Pine Area Protected
11.9	.496	1.53	.029	.090	1.11	3.42	.065	.201

Future Work

Complete initial Ribes eradication, 147,777 acres - based on estimates made during 1934 of acreage remaining to be worked in each town, including both pine areas and protection strips. Re-examination of 1918-1929^{initial} control areas which have not been re-eradicated of Ribes, 110,554 acres; estimate 50 per cent, or 55,277 acres, will need intensive working.

in 6 towns

white pine blight and protection. Seven additional demonstration plots were laid out in 1933. During the fall of 1933 and spring of 1934, pine infection studies were made by the agents in 14 Vermont towns to determine the effectiveness of the control work. These data were summarized at the Boston Office and copies of the summaries sent to the Forestry Commissioner and to the Washington Office to be used for informational purposes. Additional effectiveness of control and blight and damage studies were made by agent teams during the fall and winter of 1933-1934 and in 1934.

Total Cost of All Blister Beet Control Work, 1913-1934, Inclusive.

State or Territory	Towns	Indiv.	E.F.T.	E.C.V.	T.V.A.	Total
\$25,390.00	1,197.01	71,204.77	112,798.94	20,216.70	29,407.07	\$208,716.97

The total expenditures for all control work include cost of administration, supervision, blight and control agent activities, blight eradication, field investigation, blight, insect, sanitation, blight current elimination, blight compensation, and miscellaneous.

Relation of Total Cost of All Control Activities to Total Commercial Value of White Pine

Acres of White Pine	Commercial Value of White Pine	Total Cost of All Control Activities, 1913-1934, Incl.	Percent of Total Com- mercial Value Represented by Cost of All Control Work
567,000	\$18,330,000	\$208,716.97	1.1

Comparison Between Cost per Acre Based on Blight Eradication Costs Only and
on Cost of All Control Activities, 1913-1934, Inclusive.

Cost per Acre							
Based on Blight Eradication Costs Only		Based on Total Expenditures		1913-1934		1913-1934	
Total Area		Total Area		Total Area		Total Area	
Acres	Cost	Acres	Cost	Acres	Cost	Acres	Cost
11.3	.96	1.47	.09	1.11	.12	1.06	.06

Future Work

Complete initial blight eradication, 147,777 acres - based on estimates made during 1934 of acres remaining to be worked in each town, including both pine areas and protection areas. Re-eradication of 1913-1934 areas which have not been re-eradicated of blight, 110,254 acres; estimate 50 per cent, or 55,127 acres, will need intensive working.

BLISTER RUST CONTROL IN MASSACHUSETTS

Acreage and Commercial Value of White Pine

	<u>Acreage</u>	<u>Value</u>
Pure white pine (20-100% pine) -(Over 6" DBH.....	162,113	\$18,156,656.
(Under 6" DBH.....	288,686	7,217,150.
Mixed white pine -(21-29% pine.....	63,765	1,785,420.
(30-79% pine.....	273,266	15,302,896.
Other types with scattered white pine stocking and restocking*.....	170,734	{1,195,138.-Pine stock- ing (289,617.-Restocking
White pine restocking in pure merchantable white pine and mixed white pine types.....	162,351**	310,135.
Totals.....	958,564	\$44,257,012.

*Excludes those "other types" which have 1-20% white pine (above restocking size), but do not contain white pine restocking.

**This acreage not included in total as it is already listed under pure and mixed white pine types.

Basis for estimating value of white pine: merchantable stumpage figured at normal value of \$7 per M - average volume per acre, pure merchantable white pine = 16 M bd.ft.; mixed white pine, 21-29% = 4 M bd.ft.; mixed white pine, 30-79% = 8 M bd.ft.; and white pine, above restocking size, in other types = 1 M bd.ft. Pure stands of white pine under 6" DBH given normal value of \$25 per acre. Estimated normal per acre value of white pine restocking: degree of restocking, light = \$1, medium = \$2, heavy = \$3.

Stumpage prices under present abnormal conditions range from \$2 to \$6 per thousand board feet. This is, however, a temporary situation which should return to normal when economic conditions improve.

Wild Ribes Conditions

In the eastern part of the state, the Ribes are relatively few and localized, except in northern Worcester County where heavy concentrations of skunk currants occur in the swamps and along streams. Ribes are general and fairly abundant in the western third of the state.

Pine Infection Conditions

Blister rust infection is general on white pines in the Counties of Essex, Plymouth, northern Worcester, southern Berkshire, and in several scattered towns in the other counties. There are 70 major centers of infection. In the remainder of the state, infection occurs as scattering or isolated spots. To date, diseased pines have been found in all of the 355 townships of the state, except in the City of Chelsea and in two of the five townships on Martha's Vineyard.

[Faint, illegible text]

Other types with scattered white pine stocking and

*This amount not included in total as it is already listed under
residential sites, but do not contain white pine material.
*Excludes those "open" types which have 1-50% white pine (above
ground and white pine types.

to pine restocking: degree of restocking, light = \$1; medium = \$2; heavy = \$3.
 value of 100 ft. above normal per acre value
 white pine, above restocking size, in other types = 1 M bd.ft.; mixed white pine, 80-99% = 8 M bd.ft.;
 t.: mixed white pine, 51-59% = 4 M bd.ft.; mixed white pine, 30-79% = 8 M bd.ft.;
 value of 100 ft. - average value per acre, fine merchantable white pine = 16
 Basis for estimating value of white pine: merchantable diameter measured at

Test. This is a very important question which should be retained as a normal test.

0000000000000000

In the eastern part of the state, the Ribes are relatively few and localized, in western Colorado where heavy concentrations of shrub growth occur, Ribes are general and fairly abundant in the western part of the state.

Five Infection Conditions

in all of the 355 townships of the state, except in the City of Chicago and in two townships on Martin's Vineyard. Five townships on Martin's Vineyard.

Policy

Control work is carried on in cooperation with individuals. State scouts are used to examine town areas for Ribes, to eradicate such bushes in areas where they are few, and to designate sections requiring intensive control work which will be done by the pine owners under the direction of state foremen. During 1933 and 1934, the regular cooperative work was necessarily curtailed due to the activities conducted under the E.C.W., E.W.A., and C.W.A. Programs. All work carried on under these programs was supervised by the district blister rust control agents.

Informational and Service Activities of Permanent and Temporary Agents,
1923-1934

Informational

Meetings addressed.....	425	Publications distributed*.....	150,907
Attendance.....	27,791	Mimeo. articles dist. (1928-1934)*.	2,445
Field demonstration meetings**.....	457	Items published.....	2,011
Attendance**.....	3,392	Posters and signs placed*.....	3,116
Displays placed.....	683	Roadside dem. placed (1930-1934)*..	106

Service

Initial interviews.....	30,054	Persons instructed in field.....	11,423
Follow-up calls.....	10,673		

*No record kept of these items after April 30, 1934.

**Included with "Meetings addressed" after April 30, 1934.

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*** " " "Displays placed" " " " "
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During 1920 and 1921, four town appropriations totaling \$1700. were made for blister rust control work in Massachusetts. Since 1918, a total of 19,859 individual cooperators have spent \$91,658.59 on Ribes eradication work. The expenditures by individuals include \$2,817.00 spent on special black currant eradication work during the period 1930-1934, and \$230.00 on special nursery sanitation work from 1932-1934, inclusive.

Results of Ribes Eradication Work, 1918-1974, Inclusive
(Initial and Re-eradication)

Program	Acreage Worked	Ribes Pulled		Cost					Per Acre	
		Wild	Cult.	State	Towns	Indiv.	Govt.	Total	Cost	Ribes
Regular	2,217,949	13,809,683	245,408	209,896.93	1699.22	84,949.19	23,106.93	319,652.27	.144	5.2
E.C.W.	19,908	465,297	1,640	-	-	-	13,764.01	13,764.01	.691	27.4
P.W.A.	95,751	898,650	1,254	218.54	-	3,662.40	16,579.11	20,460.05	.214	9.4
Total	2,333,608	15,173,630	249,302	210,115.47	1699.22	88,611.59	53,450.05	353,876.33	.152	6.5

Excludes special nursery sanitation work during the period 1930-1934, inclusive, when separate records were kept for this project - also excludes special black current eradication work since 1929.

The cost of the Ribes eradication project includes owners' labor (valued at 40 cents per hour) and all expenditures for wages of laborers, scouts and foremen employed in locating and pulling Ribes - cost of crew transportation, and miscellaneous expenses for

trail paper, picks, etc. In the case of the E. C. W. personnel, the cost of their total time on Ribes eradication work was figured at the rate of \$1.35 per eight hour man day in 1933 and \$1.40 in 1934.

Control work was carried on from 12 C. C. C. Camps during 1933, and 9 camps in 1934.

Results of First Re-eradication of Ribes, 1923-1934, Inclusive
(Excludes special black currant elimination, and nursery sanitation, 1930-1934,incl.)

Program	Acreage Re-Worked	Ribes Pulled		Total Cost	Per Acre	
		Wild	Cult		Cost	Ribes
Regular	438,990	776,094	8363	\$41770.38	.095	1.8
E.C.W.	9,859	188,303	105	7876.01	.799	19.1
P.W.A.	86,951	140,721	1116	10370.21	.119	1.6
Total	535,800	1,105,318	9584	60016.60	.112	2.1

No direct comparison is practicable between the per acre cost of the re-eradication work and the per acre cost of all Ribes eradication, since there is a variation in the acreage involved and the sites examined.

Status of Regular Ribes Eradication Work - December, 1934

Program	Acreage of Control Area	Acreage of Control Area Worked	Percentage of Control* Area Worked	Acreage Still in Need of Protection	Acreage of White Pine	
					Total in Control Area	Est. Acreage Protected
Initial	1,830,037	1,797,808	98.2	32,229	932,564	915,778
Re-Erad.	1,619,010	535,800	33.1	1,083,210	824,076	272,722

*The percentages are the same for the pine area protected.

The "control area" for the initial work comprises the acreage initially cleared of Ribes plus the acreage still in need of such protection work. The pine acreage initially protected is based on the total pine area of the state (data secured during the cartographical survey of 1927) excluding the acreage in those towns in Suffolk, Barnstable, Essex, and Middlesex Counties where no control work is contemplated.

The "control area" for the re-eradication program based on the total area initially cleared of Ribes during the period 1918-1929, inclusive, or on the assumption that all areas initially worked prior to five years ago now need re-examination for Ribes. The acreage of pine reportected was computed on the basis of its being the same proportion of the total control area as in the initial eradication.

all paper, plans, etc. In the case of the E. C. W. personnel, the cost of their total work on Ribes eradication was figured at the rate of \$1.38 per eight hour man day in 1933 and \$1.40 in 1934.

Control work was carried on from 12 C. C. Camps during 1933, and 2 camps in 1934.

Results of First Re-eradication of Ribes, 1933-1934, Inclusive
(Includes special black current elimination, and nursery sanitation, 1930-1934, incl.)

Program	Average Re-Worked	Ribes Filled		Total Cost	Per Acre	
		Wild	Cult		Cost	Ribes
Regular	438,990	776,094	8363	\$41770.38	.095	1.8
E.C.W.	3,333	188,303	108	7876.01	.993	19.1
F.W.A.	88,981	140,721	118	10370.21	.119	1.6
Total	531,304	1,105,118	9584	60016.60	.112	2.1

No direct comparison is practicable between the per acre cost of the re-eradication work and the per acre cost of all Ribes eradication, since there is a variation in the acreage involved and the sites examined.

Status of Regular Ribes Eradication Work - December, 1934

Program	Average of Control Area	Average of Control Area Worked	Percentage of Control* Area Worked	Average Still in Need of Protection	Total in Control Area Protected	Est. Average
Initial	1,830,037	1,797,808	98.2	32,229	932,564	915,778
Re-Worked	1,619,010	535,800	33.1	1,083,210	824,076	272,722

*The percentages are the same for the pine area protected.

The "control area" for the initial work comprises the acreage initially cleared of Ribes plus the acreage still in need of such protection work. The pine acreage initially protected is based on the total pine area of the state (data secured during the cartographical survey of 1927) excluding the acreage in those towns in Suffolk, Barnstable, Nantuxet, and other Counties where no control work is contemplated.

The "control area" for the re-eradication program based on the total area initially cleared of Ribes during the period 1918-1929, inclusive, or on the assumption that all areas initially worked prior to five years ago now need re-examination for Ribes. The acreage of pine reported was computed on the basis of its being the same proportion of the total control area as in the initial eradication.

Nursery Sanitation

Status of Nursery Sanitation Work - December, 1934

	Number of Important White Pine Growing Nurseries				Number Protected from Blister Rust			
	Reforestation	Ornamental	Both	Total	Reforestation	Ornamental	Both	Total
	Only	Only			Only	Only		
Commercial nurseries	1	15	4	20	1	12	3	16
State nurseries	5	-	-	5	5	-	-	5
Total	6	15	4	25	6	12	3	21

All nurseries growing white pines for public sale were cleared of Ribes prior to 1925. No separate records are available for this work. During 1925 and 1926, a special survey was conducted to eradicate all Ribes nigrum from within a mile of all pine growing nurseries. In this work, a total of 217 Ribes nigrum, 319 flowering currants, and 20 other cultivated Ribes were destroyed.

In 1927 and 1928, the protection zones were increased from 900 feet to 1500 feet. The policy of the state since that time has been to establish Ribes free conditions in the environs of only the more important white pine producing nurseries. It is believed that the expenditures necessary for the establishment and maintenance of such zones around any additional nurseries would not be justified because of the relatively limited number of white pines produced. The pines in the state nurseries and the important commercial nurseries are examined annually by representatives of the Division of Plant Pest Control. Each year a few infested have been found.

Since 1929 a separate record has been kept of the nursery sanitation project and these data have not been included in the summaries of the regular Ribes eradication work.

Ribes Eradication Work in Connection with Nursery Sanitation Project
1930-1934, Inclusive

Type of Work	Acreage Worked	Ribes Pulled		Total Cost	Per Acre	
		Wild	Cult.		Cost	Ribes
Initial eradication	723	30,369	112	\$558.93	.773	42.0
Re-eradication	3,469	2,831	179	2273.06	.655	0.8
Total	4,192	33,200	291	2831.99	.676	7.9

Prior to 1930, the nursery sanitation work was included in the regular Ribes eradication records. An incomplete summary, furnished by the state leader (based on estimates in several instances) shows that during the period 1925-1929, inclusive, a total of 15,450 acres were examined, 5,662 wild Ribes and 5,136 cultivated bushes being eradicated at a total cost of \$8,678.75. Of this total, 4,625 acres were re-eradication in which 21 wild and 648 cultivated Ribes were removed at a cost of \$918.90.

Nursery Sanitation

Status of Nursery Sanitation Work - December, 1939

Number of Important White Pine Growing Nurseries	Reforestation		Number of Important White Pine		Number Protected from	
	Only	Both	Only	Both	Only	Both
1	12	4	20	1	12	3
2	-	-	2	2	-	-
3	6	4	25	6	12	3

All nurseries growing white pines for public sale were cleared of Ribes prior to 1925. Separate records are available for this work. During 1925 and 1926, a special survey was conducted to eradicate all Ribes within a mile of all pine growing nurseries. In this work, a total of 217 Ribes were removed, 713 flowering currants, and 20 other cultivated Ribes were destroyed.

In 1927 and 1928, the protection zones were increased from 500 feet to 1500 feet. A policy of the state since that time has been to establish Ribes free conditions in the vicinity of only the more important white pine producing nurseries. It is believed that the conditions necessary for the establishment and maintenance of such zones around any additional nurseries would not be justified because of the relatively limited number of white pines produced. The pines in the state nurseries and the important commercial nurseries are examined annually by representatives of the Division of Plant Pest Control. Each year a few tested have been found.

Since 1929 a separate record has been kept of the nursery sanitation project and the data have not been included in the summary of the regular Ribes eradication work.

Ribes Eradication Work in Connection with Nursery Sanitation Project
1930-1939, inclusive

Type of Work	Average	Ribes Killed		Total Cost	Per Acre	
		Wild	Cult.		Cost	Ribes
Initial eradication	123	10,769	112	\$278.97	1.14	45.0
Re-eradication	1,469	2,371	179	\$237.06	.625	0.4
Total	1,592	32,200	291	\$516.03	.616	1.9

Prior to 1930, the nursery sanitation work was included in the regular Ribes eradication records. An incomplete summary, furnished by the state leader (based on estimates several instances) shows that during the period 1925-1929, inclusive, a total of 12,490 trees were examined, 2,602 wild Ribes and 2,175 cultivated bushes being eradicated at a total cost of \$8,675. Of this total, \$625 were re-eradication in which 21 wild and 608 cultivated Ribes were removed at a cost of \$918.90.

An inspection was made of the environs of the state nurseries by representatives of the Division of Blister Rust Control during the fall of 1932. As a result of this examination, the environs of two of the state nurseries were reworked for Ribes in 1933. Future sanitation work around commercial nurseries will be limited to re-examination of the environs of those nurseries which have already been initially protected.

Black Currant Eradication

Several thousand cultivated black currants were destroyed in Massachusetts during 1917 in connection with a state-wide cultivated Ribes census. During the period 1918-1926, black currants were eradicated in conjunction with the regular control work. In 1927, a special regulation was made effective prohibiting the possession of Ribes nigrum in the state, and a systematic campaign was begun to eliminate such bushes. However, during the years 1927, 1928, and 1929, this special project was conducted in conjunction with the regular field work and the records were not kept separately. During the five field seasons of 1930-1934, inclusive, this black currant work has been carried on strictly as a separate project. As a result of this work, in 270 towns, during the past five years, 37269 black currants were found and destroyed. At the end of the 1934 season, such black currant elimination work had been completed in 338 out of a total of 355 towns and cities in the state.

White Pine Blister Rust Canker Elimination

Under the C.W.A. Program during the winter of 1933-1934, canker elimination work was conducted in three of the agents' districts; 4341 acres of pine being examined on municipally-owned lands. A total of 17,303 pines with stem cankers were destroyed, and 17,511 branch infections were pruned from 12,784 other pines. This project consumed 43,270 man hours and cost \$24,255.74.

Cultivated Ribes Compensation, 1918-1934

Total number of cultivated Ribes pulled.....	287,222
Total number of bushes paid for.....	40,927
Number of persons paid compensation.....	652
Total amount paid in reimbursement.....	\$14,476.80

(These data include \$5,665.05 paid in 1918 to 253 persons for 16,517 bushes destroyed in 1917 and 1918, mostly in 1917. It is not possible to separate the 1917 data.)

Surveys

Cultivated Ribes census throughout entire state in 1917 - data compiled and a summary report prepared - used as a basis for inspections and eradication of Ribes nigrum. During 1920, strip line infection survey was made - the pines on a rod wide strip totaling 4.4 miles in length were examined - a total of 871 pines were inspected and 5.7 per cent were found infected - 9 plots, totaling 3 acres, were laid out adjacent to the strips; 27 per cent of the 637 pines in these plots were diseased - epidemiology survey by agents during 1926 of white pine and other types, Ribes and infection - maps and summaries prepared at Boston Office. During 1933-1935, pine and control area mapping was conducted under the P.W.A. and C.W.A. Programs. Up to May 31, 1935, a total of 81,685 acres were mapped in detail and an additional 16,146 acres examined but not mapped due to lack of sufficient pine to justify control measures. These mapping projects required 915 man days labor.

in connection with the survey of the state nurseries by representatives of the Division of Forest Control during the fall of 1932. As a result of this examination, the survey of two of the state nurseries were reported for Ribes in 1933. Future examination work around commercial nurseries will be limited to re-examination of the nurseries of those nurseries which have already been initially protected.

Black Current Eradication

Several thousand cultivated black currants were destroyed in Massachusetts during 1937 in connection with a state-wide cultivated Ribes census. During the period 1918-1937, black currants were eradicated in conjunction with the regular control work. In 1937, a special regulation was made effective prohibiting the possession of Ribes in the state, and a systematic campaign was begun to eliminate such bushes. However, during the years 1927, 1928, and 1929, this special project was conducted in conjunction with the regular field work and the results were not kept separately. During the five field seasons of 1930-1934, inclusive, this black current work has been carried on strictly as a separate project. As a result of this work, in 1930 season, during the past five years, 3,769 black currants were found and destroyed. At the end of the 1934 season, such black current eradication work had been completed in 75 out of a total of 257 towns and cities in the state.

White Pine Ribes Root Girdler Eradication

Under the C.W.A. Program during the winter of 1933-1934, certain eradication work was conducted in three of the agency districts; 4,741 acres of pine being examined on municipally-owned lands. A total of 14,303 pines with stem cankers were destroyed, and 17,521 branch infections were pruned from 12,784 other pines. This project consumed 43,870 man hours and cost \$24,252.74.

Cultivated Ribes Compensation, 1918-1934

Total number of cultivated Ribes pruned.....	221,725
Total number of bushes paid for.....	40,927
Number of persons paid compensation.....	622
Total amount paid in reimbursement.....	\$14,476.30

(These data include \$2,662.02 paid in 1918 to 253 persons for 16,517 bushes destroyed in 1917 and 1918, mostly in 1917. It is not possible to separate the 1917 data.)

Summary

Cultivated Ribes census throughout entire state in 1937 - data compiled and a summary report prepared - used as a basis for inspections and eradication of Ribes during 1930, strip line infection survey was made - the pines on a red white strip line 4.4 miles in length were examined - a total of 871 pines were inspected and 2.7 per cent were found infected - 9 plots, totaling 7 acres, were laid out adjacent to the strip line and 27 per cent of the 677 pines in these plots were diseased - epidemiology survey by agents during 1932 of white pine and other types, Ribes and infection - maps and summaries prepared at Forest Office. During 1933-1935, pine and control area mapping was conducted under the F.W.A. and C.W.A. Programs. Up to May 31, 1935, a total of 21,605 acres were mapped in detail and an additional 10,145 acres examined but not mapped due to lack of sufficient pine to justify control measures. These mapping projects required 315 man days labor.

Investigations

Demonstration control areas established at Barre and Pembroke. Pine infection study made by Root at Pembroke, also infection studies made by Pickler at Sandisfield, and by Hodgkins at Swanzey - reports submitted. Cutting out of cankers studies made by Martin at Ipswich, and by Hodgkins at Pembroke - published report by Martin. Damage plots laid out by agents in western Massachusetts - used for demonstration and informational purposes. Sample forest type map made of Duxbury, used as basis for control work. Study on spread of disease from skunk currants started by Clave during 1927 - report presented at annual conference showed only limited spread from such Ribes. Since 1928, Agents Clave and Doore have conducted experiments to determine the effectiveness of certain chemicals in killing Ribes - preliminary reports have been given at the annual conferences. In 1932, additional chemical eradication plots were made in these two agents' districts under the supervision of Plungian. Five of the Massachusetts agents, including the state leader, are cooperating in the study to determine the immunity of the Viking currant to blister rust infection. Also, during 1933 and 1934, a few additional plot studies had been made of blister rust damage and Plungian's chemical eradication plots were checked.

Total Cost of All Blister Rust Control Work, 1918-1934, Inclusive

State BR Approp.	Other State Approp.	Towns	Indiv.	B.P.I.	E.C.W.	P.W.A.	C.W.A.	Total
\$229,014.11	50,265.38	1699.22	91,658.59	323,303.88	17,986.52	39,075.63	31,134.08	\$784,137.41

The total expenditures for all control activities include cost of administration, supervision, blister rust control agent activities, Ribes eradication, field investigations, nursery sanitation, black currant eradication, Ribes compensation, and miscellaneous.

Relation of Total Cost of All Control Activities to Total Commercial Value of White Pine

Acreage of White Pine	Commercial Value of White Pine	Cost of All Control Activities, 1918-1934, Incl.	% Of Total Commercial Value Represented by Cost of All Control Work
958,564	\$44,257,012	\$784,137.41	1.8

Comparison Between Cost Per Acre Based on Eradication Costs Only and on Cost of All Control Projects, 1918-1934, Inclusive

Ribes Per Acre	Cost Per Acre							
	Based on Ribes Eradication Costs Only				Based on Total Expenditures			
	1918-1934		Average Per Year		1918-1934		Average Per Year	
	Total Area Worked	Pine Area Protected	Total Area Worked	Pine Area Protected	Total Area Worked	Pine Area Protected	Total Area Worked	Pine Area Protected
6.5	.152	.298	.009	.018	.336	.660	.020	.040

1901/1902/1903/1904

Investigation of the blight problem in the United States and Canada. A study made by Root at Cambridge, also investigation studies made by Root and by Hodgkins at Cambridge - reports submitted. Cutting out of cankers. Martin at Ipswich, and by Hodgkins at Cambridge - published reports by May. Plots laid out by agents in western Massachusetts - used for demonstration purposes. Sample forest type map made at Foxbury, used as basis for study on spread of disease from trunk cankers started by Clave and Gore. Report presented at annual conference showed only limited spread from a since 1928. Agents Clave and Gore have conducted experimental investigations of certain cankers in killing blight - preliminary reports have been submitted. In 1932, additional chemical eradication experiments were conducted under the supervision of Pinnipian. Two agents, including the state leader, are cooperating in the study to determine of the blight current to blight first infection. Also, during 1933 and 1934 additional plot studies had been made of blight root damage and blight eradication plots were checked.

Total Count of All Detector Head Control Wires, 1913-1974, Inclusive

State BE	Allegory	Town	Indic.	E.F.T.	E.O.N.	E.N.A.	W.O.
1050.014.17	50,565.78	1050.52	31,628.52	353,303.48	17,968.25	32,012.03	31

The total expenditures for all control activities include costs for supervision, blister trust control activities, blister production, blister packaging, blister current eradication, blister compensation, and blister eradication.

Revelation of Total Cost of All Control Activities to Total Contribution
of Active Sites

White Pine	White Pine	of	Commercial Value	Cost of All Control	Net Total
100.00	100.00	100.00	100.00	100.00	100.00

and an Cost of All Control Projects, 1-18-1944, Inclusive
Comparison Between Cost For Same Based on Evaluation Costs 0

1915-1916		1916-1917		1917-1918		1918-1919		1919-1920		1920-1921		1921-1922		1922-1923		1923-1924		1924-1925		1925-1926		1926-1927		1927-1928		1928-1929		1929-1930		1930-1931		1931-1932		1932-1933		1933-1934		1934-1935		1935-1936		1936-1937		1937-1938		1938-1939		1939-1940		1940-1941		1941-1942		1942-1943		1943-1944		1944-1945		1945-1946		1946-1947		1947-1948		1948-1949		1949-1950		1950-1951		1951-1952		1952-1953		1953-1954		1954-1955		1955-1956		1956-1957		1957-1958		1958-1959		1959-1960		1960-1961		1961-1962		1962-1963		1963-1964		1964-1965		1965-1966		1966-1967		1967-1968		1968-1969		1969-1970		1970-1971		1971-1972		1972-1973		1973-1974		1974-1975		1975-1976		1976-1977		1977-1978		1978-1979		1979-1980		1980-1981		1981-1982		1982-1983		1983-1984		1984-1985		1985-1986		1986-1987		1987-1988		1988-1989		1989-1990		1990-1991		1991-1992		1992-1993		1993-1994		1994-1995		1995-1996		1996-1997		1997-1998		1998-1999		1999-2000		2000-2001		2001-2002		2002-2003		2003-2004		2004-2005		2005-2006		2006-2007		2007-2008		2008-2009		2009-2010		2010-2011		2011-2012		2012-2013		2013-2014		2014-2015		2015-2016		2016-2017		2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		2022-2023		2023-2024		2024-2025		2025-2026		2026-2027		2027-2028		2028-2029		2029-2030		2030-2031		2031-2032		2032-2033		2033-2034		2034-2035		2035-2036		2036-2037		2037-2038		2038-2039		2039-2040		2040-2041		2041-2042		2042-2043		2043-2044		2044-2045		2045-2046		2046-2047		2047-2048		2048-2049		2049-2050		2050-2051		2051-2052		2052-2053		2053-2054		2054-2055		2055-2056		2056-2057		2057-2058		2058-2059		2059-2060		2060-2061		2061-2062		2062-2063		2063-2064		2064-2065		2065-2066		2066-2067		2067-2068		2068-2069		2069-2070		2070-2071		2071-2072		2072-2073		2073-2074		2074-2075		2075-2076		2076-2077		2077-2078		2078-2079		2079-2080		2080-2081		2081-2082		2082-2083		2083-2084		2084-2085		2085-2086		2086-2087		2087-2088		2088-2089		2089-2090		2090-2091		2091-2092		2092-2093		2093-2094		2094-2095		2095-2096		2096-2097		2097-2098		2098-2099		2099-2100		2100-2101		2101-2102		2102-2103		2103-2104		2104-2105		2105-2106		2106-2107		2107-2108		2108-2109		2109-2110		2110-2111		2111-2112		2112-2113		2113-2114		2114-2115		2115-2116		2116-2117		2117-2118		2118-2119		2119-2120		2120-2121		2121-2122		2122-2123		2123-2124		2124-2125		2125-2126		2126-2127		2127-2128		2128-2129		2129-2130		2130-2131		2131-2132		2132-2133		2133-2134		2134-2135		2135-2136		2136-2137		2137-2138		2138-2139		2139-2140		2140-2141		2141-2142		2142-2143		2143-2144		2144-2145		2145-2146		2146-2147		2147-2148		2148-2149		2149-2150		2150-2151		2151-2152		2152-2153		2153-2154		2154-2155		2155-2156		2156-2157		2157-2158		2158-2159		2159-2160		2160-2161		2161-2162		2162-2163		2163-2164		2164-2165		2165-2166		2166-2167		2167-2168		2168-2169		2169-2170		2170-2171		2171-2172		2172-2173		2173-2174		2174-2175		2175-2176		2176-2177		2177-2178		2178-2179		2179-2180		2180-2181		2181-2182		2182-2183		2183-2184		2184-2185		2185-2186		2186-2187		2187-2188		2188-2189		2189-2190		2190-2191		2191-2192		2192-2193		2193-2194		2194-2195		2195-2196		2196-2197		2197-2198		2198-2199		2199-2200		2200-2201		2201-2202		2202-2203		2203-2204		2204-2205		2205-2206		2206-2207		2207-2208		2208-2209		2209-2210		2210-2211		2211-2212		2212-2213		2213-2214		2214-2215		2215-2216		2216-2217		2217-2218		2218-2219		2219-2220		2220-2221		2221-2222		2222-2223		2223-2224		2224-2225		2225-2226		2226-2227		2227-2228		2228-2229		2229-2230		2230-2231		2231-2232		2232-2233		2233-2234		2234-2235		2235-2236		2236-2237		2237-2238		2238-2239		2239-2240		2240-2241		2241-2242		2242-2243		2243-2244		2244-2245		2245-2246		2246-2247		2247-2248		2248-2249		2249-2250		2250-2251		2251-2252		2252-2253		2253-2254		2254-2255		2255-2256		2256-2257		2257-2258		2258-2259		2259-2260		2260-2261		2261-2262		2262-2263		2263-2264		2264-2265		2265-2266		2266-2267		2267-2268		2268-2269		2269-2270		2270-2271		2271-2272		2272-2273		2273-2274		2274-2275		2275-2276		2276-2277		2277-2278		2278-2279		2279-2280		2280-2281		2281-2282		2282-2283		2283-2284		2284-2285		2285-2286		2286-2287		2287-2288		2288-2289		2289-2290		2290-2291		2291-2292		2292-2293		2293-2294		2294-2295		2295-2296		2296-2297		2297-2298		2298-2299		2299-2300		2300-2301		2301-2302		2302-2303		2303-2304		2304-2305		2305-2306		2306-2307		2307-2308		2308-2309		2309-2310		2310-2311		2311-2312		2312-2313		2313-2314		2314-2315		2315-2316		2316-2317		2317-2318		2318-2319		2319-2320		2320-2321		2321-2322		2322-2323		2323-2324		2324-2325		2325-2326		2326-2327		2327-2328		2328-2329		2329-2330		2330-2331		2331-2332		2332-2333		2333-2334		2334-2335		2335-2336		2336-2337		2337-2338		2338-2339		2339-2340		2340-2341		2341-2342		2342-2343		2343-2344		2344-2345		2345-2346		2346-2347		2347-2348		2348-2349		2349-2350		2350-2351		2351-2352		2352-2353		2353-2354		2354-2355		2355-2356		2356-2357		2357-2358		2358-2359		2359-2360		2360-2361		2361-2362		2362-2363		2363-2364		2364-2365		2365-2366		2366-2367		2367-2368		2368-2369		2369-2370		2370-2371		2371-2372		2372-2373		2373-2374		2374-2375		2375-2376		2376-2377		2377-2378		2378-2379		2379-2380		2380-2381		2381-2382		2382-2383		2383-2384		2384-2385		2385-2386		2386-2387		2387-2388		2388-2389		2389-2390		2390-2391		2391-2392		2392-2393		2393-2394		2394-2395		2395-2396		2396-2397		2397-2398		2398-2399		2399-2400		2400-2401		2401-2402		2402-2403		2403-2404		2404-2405		2405-2406		2406-2407		2407-2408		2408-2409		2409-2410		2410-2411		2411-2412		2412-2413		2413-2414		2414-2415		2415-2416		2416-2417		2417-2418		2418-2419		2419-2420		2420-2421		2421-2422		2422-2423		2423-2424		2424-2425		2425-2426		2426-2427		2427-2428		2428-2429		2429-2430		2430-2431		2431-2432		2432-2433		2433-2434		2434-2435		2435-2436		2436-2437		2437-2438		2438-2439		2439-2440		2440-2441		2441-2442		2442-2443		2443-2444		2444-2445		2445-2446		2446-2447		2447-2448		2448-2449		2449-2450		2450-2451		2451-2452		2452-2453		2453-2454		2454-2455		2455-2456		2456-2457		2457-2458		2458-2459		2459-2460		2460-2461		2461-2462		2462-2463		2463-2464		2464-2465		2465-2466		2466-2467		2467-2468		2468-2469		2469-2470		2470-2471		2471-2472		2472-2473		2473-2474		2474-2475		2475-2476		2476-2477		2477-2478		2478-2479		2479-2480		2480-2481		2481-2482		2482-2483		2483-2484		2484-2485		2485-2486		2486-2487		2487-2488		2488-2489		2489-2490		2490-2491		2491-2492		2492-2493		2493-2494		2494-2495		2495-2496		2496-2497		2497-2498		2498-2499		2499-2500		2500-2501		2501-2502		2502-2503		2503-2504		2504-2505		2505-2506		2506-2507		2507-2508		2508-2509		2509-2510		2510-2511		2511-2512		2512-2513		2513-2514		2514-2515		2515-2516		2516-2517		2517-2518		2518-2519		2519-2520		2520-2521		2521-2522		2522-2523		2523-2524		2524-2525		2525-2526		2526-2527		2527-2528		2528-2529		2529-2530		2530-2531		2531-2532		2532-2533		2533-2534		2534-2535		2535-2536		2536-2537		2537-2538		2538-2539		2539-2540		2540-2541		2541-2542		2542-2543		2543-2544		2544-2545		2545-2546		2546-2547		2547-2548		2548-2549		2549-2550		2550-2551		2551-2552		2552-2553		2553-2554		2554-2555		2555-2556		2556-2557		2557-2558		2558-2559		2559-2560		2560-2561		2561-2562		2562-2563		2563-2564		2564-2565		2565-2566		2566-2567		2567-2568		2568-2569		2569-2570		2570-2571		2571-2572		2572-2573		2573-2574		2574-2575		2575-2576		2576-2577		2577-2578		2578-2579		2579-2580		2580-2581		2581-2582		2582-2583		2583-2584		2584-2585		2585-2586		2586-2587		2587-2588		2588-2589		2589-2590		2590-2591		2591-2592		2592-2593		2593-2594		2594-2595		2595-2596		2596-2597		2597-2598		2598-2599		2599-2600		2600-2601		2601-2602		2602-2603		2603-2604		2604-2605		2605-2606		2606-2607		2607-2608		2608-2609		2609-2610		2610-2611		2611-2612		2612-2613		2613-2614		2614-2615		2615-2616		2616-2617		2617-2618		2618-2619		2619-2620		2620-2621		2621-2622		2622-2623		2623-2624		2624-2625		2625-2626		2626-2627		2627-2628		2628-2629		2629-2630		2630-2631		2631-2632		2632-2633		2633-2634		2634-2635		2635-2636		2636-2637		2637-2638		2638-2639		2639-2640		2640-2641		2641-2642		2642-2643	
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Future Work

Complete initial eradication, 32,229 acres (based on estimate by state leader - includes both acreages of pine and protection strips). Re-examination of 1918-1929 initial control areas that have not been re-eradicated of Ribes, 1,083,210 acres; estimate 50 per cent, or 541,605 acres will need intensive reworking. Complete Ribes nigrum eradication throughout state - complete chemical eradication study - make additional studies to determine effectiveness of control - maintain Ribes free conditions in the environs of pine growing nurseries.

Future Work

Complete initial examination, 12,123 acres (based on estimate by state forester - includes both sections of pine and protection strips). Re-examination of 1914-1923 initial control areas that have not been re-examined of 1923, 1,000,000 acres; estimate 50 per cent. or 500,000 acres will need intensive re-examination. Complete 1923 re-examination throughout state - complete chemical examination study - make additional studies to determine effectiveness of control - maintain 1923 free conditions in the vicinity of pine growing nurseries.

BLISTER RUST CONTROL IN RHODE ISLAND

Acreage and Commercial Value of White Pine

	<u>Acreage</u>	<u>Value</u>
Pure white pine (80-100% pine) - (Over 6" DBH.....)	13,343	\$1,494,416.
(Under 6" DBH.....)	436	10,900.
Mixed white pine - (21-29% pine in mixture.....)	0	0
(30-79% " " " ".....)	0	0
Other types with scattered white pine stocking and restocking*.	59,417	(415,919. Pine stock. (80,818. Restocking
Totals.....	73,196	\$2,002,053.

*Excludes those "other types" which have 1-20% white pine (above restocking size), but do not contain white pine restocking.

Basis for estimating value of white pine: merchantable stumpage figured at normal value of \$7 per M - average volume per acre, pure merchantable white pine = 16 M bd. ft.; mixed white pine, 21-29% = 4 M bd.; mixed white pine, 30-79% = 8 M bd. ft.; and white pine, above restocking size in other types = 1 M bd. ft. Pure stands of white pine under 6" DBH given normal value of \$25 per acre. Estimated normal per acre value of white pine restocking: degree of restocking, light = \$1, medium = \$2, heavy = \$3.

Stumpage prices under present abnormal conditions range from \$2 to \$6 per thousand board feet. This is, however, a temporary situation which should return to normal when economic conditions improve.

Ribes Conditions

Wild Ribes are few and localized, averaging only 0.8 bushes per acre on the 337,103 acres worked to date. Such bushes are confined chiefly to the following sites: roadsides, cellar holes, fence rows, swamps, and stream courses.

Pine Infection Conditions

Spot infections, many from cultivated black currants-some of the infections have been cut out. Scouting during 1934 revealed 30 new spot infections in white pine. From one to several trees were diseased in each of these locations. Many of the infections were of recent origin, showing the need for reeradication work.

Policy

Up to 1933, all control work was performed by state scouts, as wild Ribes are so few and localized. During the period 1929-1931, inclusive, all the control work in the state was confined to the elimination of Ribes nigrum. In 1933 and 1934 the regular work was necessarily curtailed due to the activities conducted under the E.C.W. and P.W.A. Programs, all of this work being supervised by the state blister rust control leader.

WHITE PINE CONTROL IN BRITISH COLUMBIA

Statement of Commercial Value of White Pine

Value	Acres	Description
\$1,344,418	17,347	(Over 6" DBH) -
10,200	175	(Under 6" DBH) -
0	0	(21-29" pine in mixture)
0	0	" " " (30-39")
(115,919.41) (80,818.85)	53,417	Other types with scattered white pine seedling and restocking
\$2,000,000	73,196	

*Excludes those "other types" which have 1-20% white pine (above restocking size), but do not contain white pine restocking.

Basic for estimating value of white pine: merchantable stumpage figured at normal rate of \$1 per M - average volume per acre, pure merchantable white pine = 18 M bd. ft.; mixed white pine, 21-29" = 8 M bd. ft.; mixed white pine, 30-39" = 6 M bd. ft.; and white pine, 40-49" = 4 M bd. ft. Pure stands of white pine under 6" DBH are restocked at 1 M bd. ft. Estimated normal per acre value of white pine restocking: degree of restocking, light = \$1, medium = \$2, heavy = \$3.

Stumpage prices under present abnormal conditions range from \$5 to \$6 per thousand bd. ft. This is, however, a temporary situation which should return to normal when economic conditions improve.

White Conditions

White pine is rare and localized, averaging only 0.8 bushes per acre on the 337,107 acres worked to date. Such bushes are confined chiefly to the following sites: roadbeds, far north, fence rows, swamps, and stream courses.

Pine Infection Conditions

Spot infections, many from untreated black currants - some of the infections have been out. Scouting during 1934 revealed 30 new spot infections in white pine. From one to several trees were diseased in each of these locations. Many of the infections were of recent origin, showing the need for restocking work.

Policy

Up to 1931, all control work was performed by state agents, as with white pine is now localized. During the period 1932-1934, inclusive, all the control work in the state continued to be administered by the state. In 1935 and 1936 the regular work was essentially continued due to the activities conducted under the E.O.W. and P.W.A. Programs, of this work being supervised by the state district control agents.

1801-1802

184	.....	Address addressed
15,394	.....	Attendance
22	.....	Self demonstration meetings
1,543	.....	Attendance
26	.....	Speakers placed
35,751	.....	Publications distributed
5,250	.....	Minors articles dist. (1928-1934)
781	Items published
5,104	Letters and signs placed
3	Headings dem. placed (1930-1934)***

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754.8sallu qu-woll

"No record kept of these items after April 30, 1974"
**Included with "Meetings addressed" after April 30, 1974
" " " " " " " " " " " " " " "

Individual Cooperation in Raster Scan Control Work

No cooperation has been solicited except in 1918, 1927, and 1929 when eight individuals gave \$50.00 for conducting general control work in the state.

Review of Rhode Island and to collect
 (notations and illustrations)

[illegible]

*includes 1861-75 expanded by individual

This summary excludes the special nursery sanitation work from 1932-1934 inclusive.

The cost of the Ribes eradication project covers all expenditures for the wages of foremen, accountants, and foremen employed in locating and pulling Ribes--cost of crew transportation, and miscellaneous expenses--for trail paper, picks, etc. In the case of the R.C.P. personnel, the cost of their total time on Ribes eradication work was figured at the rate of \$1.75 per eight hour man day in 1937 and \$1.40 in 1934.

[illegible]

Report of Miss Re-education of Hides, 1927-1928, Inclusive

From	Re-Worried	Wipes Pulled	Total Cost	Cost	Per Acre
1	63.44	63.44	126.88	1.10	1.10
2	63.44	63.44	126.88	1.10	1.10
3	63.44	63.44	126.88	1.10	1.10
4	63.44	63.44	126.88	1.10	1.10
5	63.44	63.44	126.88	1.10	1.10
6	63.44	63.44	126.88	1.10	1.10
7	63.44	63.44	126.88	1.10	1.10
8	63.44	63.44	126.88	1.10	1.10
9	63.44	63.44	126.88	1.10	1.10
10	63.44	63.44	126.88	1.10	1.10

No direct comparison is practicable between the per acre cost of the re-eradication work and the cost of all Ribes eradication, since there is a variation in the acreage involved and in the sites examined. Due to the scarcity of the bushes, there undoubtedly will be little difference between the average per acre cost of each successive eradication, but the re-eradication work performed to date has been restricted chiefly to the sites where the bulk of the bushes were pulled on the initial work and performed by crews working in strip formation, thus the higher per acre cost.

Status of Regular Ribes Eradication Work - December, 1934

Program	Acreage of Control Area	Acreage of Control Area Worked	Percentage of Control Area Worked *	Acreage Still in need of Protection	Acreage of White Pine Total in Est. Acreage Control Area Protected	
Initial	303,376	273,259	90.1	30,117	73,196	65,950
Re-Erad.	272,682	63,844	23.4	208,838	65,716	15,386

*The percentages are the same for the pine area protected.

The control area for the initial work consists of the total acreage initially cleared of Ribes in the state, plus the acreage still in need of protection, and includes the total pine area.

The control area for the re-eradication program is based on the total area initially cleared of Ribes during the period 1918-1929, inclusive, or on the assumption that all areas initially worked prior to five years ago now need re-examination for Ribes.

Nursery Sanitation

There are 11 commercial nurseries growing ornamental white pines in the state, only 3 of which have more than 500 such trees, and 6 of the remainder have less than 100 white pines. During 1932, sanitation zones were established around 6 of the pine-growing nurseries. The environs of these six nurseries were re-examined for Ribes during 1933 and 1934. As a result of this work, 5,758 acres were cleared of 4,658 wild Ribes and 634 cultivated bushes at a total cost of \$1107.49. Of this total 4568 acres was re-eradication work, 4525 wild and 114 cultivated bushes being removed at a total cost of \$601.06.

Black Currant Eradication

A state law prohibits the possession of such bushes in the state. A survey to locate Ribes nigrum was completed in two towns in 1927. These bushes were eradicated in 1928. During 1929, 1930, and 1931, all the control work in the state was limited to the systematic eradication of Ribes nigrum. The work was continued during 1932 and 1933, and the project has now been completed over the entire state. As a result of this work, 16,219 black currants and 1093 other cultivated Ribes have been removed at a total cost of \$10,327.88.

Cultivated Ribes Compensation, 1918-1934

Total number of cultivated bushes destroyed.....	30,920
Total number bushes paid for.....	1,410
Number of persons paid compensation.....	58
Total amount paid in reimbursement.....	\$509.79

The direct comparison is practicable between the net acre cost of the re-
radiation work and the cost of all other operations, since there is a variation in
the average involved and in the acreage examined. Due to the scarcity of the bushes,
there undoubtedly will be little difference between the average per acre cost of each
re-radiation operation, but the re-radiation work performed to date has been re-
stricted chiefly to the sites where the bulk of the bushes were pulled on the initial
work and performed by crews working in strip formation, thus the higher per acre cost.

Table of Radiator Sites - December, 1934

Program	Control Area	Worked	Percentage of Control Area Worked *	Average Still in need of Protection	Average of White Pine Total in West. Area Control Area Project
Initial	307,776	213,259	69.1	30,117	77,192
Re-Exam.	272,682	67,844	24.9	208,838	62,716

*The percentages are the same for the pine area protected.

The control area for the initial work consists of the total acreage initially
leaved of bushes in the state, plus the acreage still in need of protection, and includes
the total pine area.

The control area for the re-radiation program is based on the total area initially
leaved of bushes during the period 1918-1929, inclusive, or on the assumption that all
trees initially worked prior to five years ago now need re-examination for bushes.

Nursery Examination

There are 11 commercial nurseries growing ornamental white pines in the state, only
of which have more than 500 such trees, and 6 of the remainder have less than 100
white pines. During 1932, examination zones were established around 6 of the pine-growing
nurseries. The nurseries of these six nurseries were re-examined for bushes during 1934
and 1935. As a result of this work, 2,752 acres were cleared of 4,622 wild bushes and
79 cultivated bushes at a total cost of \$1107.49. Of this total 456 acres was re-
radiation work, 452 wild and 14 cultivated bushes being removed at a total cost of
\$61.06.

Black Currant Examination

A state law prohibits the possession of such bushes in the state. A survey to
locate these sites was completed in two towns in 1927. These bushes were eradicated in
1928. During 1929, 1930, and 1931, all the control work in the state was limited to
the systematic eradication of bushes at-large. The work was continued during 1932 and
1933, and the project has now been completed over the entire state. As a result of
this work, 16,219 black currants and 1097 other cultivated bushes have been removed
at a total cost of \$10,527.88.

Cultivated Bush Compensation, 1918-1934

Total number of cultivated bushes destroyed.....	70,950
Total number bushes paid for.....	1,410
Number of persons paid compensation.....	25
Total amount paid in reimbursement.....	\$1850.79

Surveys

A rough survey of white pine areas in state was made by Sheals in 1920. This information has been used for control and informational purposes. During 1926, a cartographical survey was completed of white pine and other types, Ribes and infection conditions - these data summarized at Boston Office. A survey of the production of white pine and other woods in the state during 1925 was made by Anderson. Report prepared and published in News Letter. During 1928, Harford began a survey to map the location of white pine and other forest types, and to estimate their contents. Two townships (Coventry and West Greenwich) were completed during 1928. Due to pressure of other work, this project was limited since 1929 to the field mapping of forest areas in the townships of North Providence, Lincoln, and Cumberland. A few towns were partially mapped. During 1931, a special survey was made of 16 plantations established during 1929 and 1930 with white pine stock from an out-of-state nursery. Of the 44,939 pines examined, 1,355 or 3 per cent were found to be infected with a total of 1,373 blister rust cankers. Data taken on the age of the cankers (determined by age of wood on which infection occurred) showed that in all cases the infections developed before the pines were shipped from the nursery. State officials took immediate action to prevent further shipments of white pine into Rhode Island from this nursery, and the nurseryman in question has cooperated to the fullest extent in offering to replace the infected stock with some other species according to the wishes of the individual planter. During 1933-1935, pine and control area mapping was carried on under the E.C.W. and P.W.A. Programs during the late fall, winter and early spring months. Up to May 31, 1935, a total of 94,626 acres were mapped in detail. Such work required 764 man days labor.

Investigations

Study of Ribes regrowth and effectiveness of control made by Anderson - report prepared by Anderson and Fivaz.

Total Cost of All Blister Rust Control Work, 1918-1934, Inclusive

State BR Approp.	Other State Approp.	Indiv.	B.P.I.	E.C.W.	P.W.A.	Total
\$46,920.07	2,013.83	581.36	43,883.83	19,408.94	10,413.38	\$123,203.41

The total expenditures for all control work include cost of administration, supervision, blister rust control agent activities, Ribes eradication, field investigations, nursery sanitation, black currant eradication, Ribes compensation, and miscellaneous.

Relation of Total Cost of All Control Activities to Total Commercial Value of White Pine

Acreage of White Pine	Commercial Value of White Pine	Total Cost of all Control Activities	% Total Commercial Value Represented by Cost of All Control Activities
73,196	\$2,002,053.	\$123,203.41	6.1

A rough survey of white pine areas in state was made by Steele in 1920. This information has been used for control and informational purposes. During 1926, a cartographical survey was completed of white pine and other types, types and infections conditions - these have summarized at Boston Office. A survey of the production of white pine and other woods in the state during 1925 was made by Anderson. Report prepared and published in News Letter. During 1928, further began a survey to map the location of white pine and other forest types, and to estimate their contents. Two communities (Covington and West Greenwich) were completed during 1928. Due to pressure of other work, this project was limited since 1929 to the field mapping of forest areas in the communities of North Providence, Lincoln, and Cumberland. A few towns were partially mapped. During 1931, a special survey was made of 16 plantations established during 1929 and 1930 with white pine stock from an out-of-state nursery. Of the 14,939 pines examined, 1,355 or 9 per cent were found to be infected with a total of 1,733 blister rust cankers. Data taken on the age of the cankers (determined by age of wood on which infection occurred) showed that in all cases the infections developed before the pines were shipped from the nursery. State officials took immediate action to prevent further shipments of white pine into Rhode Island from this nursery, and the nurseryman in question has cooperated to the fullest extent in offering to replace the infected stock with some other species according to the wishes of the individual planter. During 1933-1935, pine and control area mapping was started on under the E.C.W. and F.W.A. Programs during the late fall, winter and early spring months. Up to May 31, 1935, a total of 94,626 acres were mapped in detail. Much work required 704 man days labor.

Investigations

Study of Ribes regrowth and effectiveness of control made by Anderson - report prepared by Anderson and Tivas.

Total Cost of All Blister Rust Control Work, 1918-1935, Indicative

State RI	Other States	Indiv.	E.P.I.	E.C.W.	F.W.A.	Total
\$6,920.07	\$2,013.27	\$281.36	\$2,235.27	\$9,408.94	\$10,417.36	\$127,505.61

The total expenditures for all control work include cost of administration, supervision, blister rust control agent activities, Ribes eradication, field investigations, nursery sanitation, black current eradication, Ribes compensation, and miscellaneous.

Relation of Total Cost of All Control Activities to Total Commercial Value of White Pine

White Pine	Commercial Value of White Pine	Total Cost of all Control Activities	Total Commercial Value Represented by Cost of All Control Activities
77.196	\$2,002,057.	\$127,507.41	6.1

Comparison Between Cost Per Acre Based on Ribes Eradication Costs Only and
On Cost of All Control Projects, 1918-1934, Inclusive

Ribes Per Acre	Cost Per Acre							
	Based on Ribes Eradication Costs Only				Based on Total Expenditures			
	1918-1934		Average Per Year		1918-1934		Average Per Year	
	Total Area Worked	Pine Area Protected	Total Area Worked	Pine Area Protected	Total Area Worked	Pine Area Protected	Total Area Worked	Pine Area Protected
0.8	.149	.616	.009	.036	.365	1.51	.022	.089

Future Work

Complete initial Ribes eradication 30,117 (basis, revised estimates in 1934 by Hurford of total acreage to be worked in each town-including both pine areas and protection strips-protect pine plantations made outside control area. Re-examination of all 1918-1929 control areas (208,838 acres) which have not already been re-worked, and eradication of Ribes in all likely sites such as: swamps, stream courses, fence rows, walls, cellar holes and roadways-report on all control work in state - complete survey of forest types and an estimate of their contents - maintain Ribes-free conditions in environs of pine growing nurseries.

Comparison Between Cost Per Acre Based on Ribes Eradication Costs Only and
On Cost of All Control Projects, 1918-1974, Inclusive

Ribes Per Acre	Based on Ribes Eradication Costs Only				Based on Total Expenditures			
	1918-1974		Average Per Year		1918-1974		Average Per Year	
	Total Area Protected	Pine Area Protected	Total Area Protected	Pine Area Protected	Total Area Protected	Pine Area Protected	Total Area Protected	Pine Area Protected
0.8	.149	.616	.009	.036	.365	1.51	.022	.089

Future Work

Complete initial Ribes eradication 30,117 (bats), revised estimates in 1974 by
ratio of total acreage to be worked in each town-including both pine areas and protection
status-protect pine plantations made outside control areas. Re-examination of all 1918-1974
control areas (203,878 acres) which have not already been re-worked, and eradication of
Ribes in all likely sites such as: swamps, stream courses, fence rows, walls, cellar holes
and roadways-report on all control work in state - complete survey of forest types and an
estimate of their contents - maintain Ribes-free conditions in environs of pine growing
terraces.

BLISTER RUST CONTROL IN CONNECTICUT
Acreage and Commercial Value of White Pine

	<u>Acreage</u>	<u>Value</u>
Pure white pine (80-100% pine) - (Over 6" DBH.....	32,697	\$3,662,064.
(Under 6" DBH.....	40,729	1,018,225.
Mixed white pine - (21-29% pine in mixture.....	57,794	1,618,232.
(30-79% pine in mixture.....	66,551	3,726,856.
Other types with scattered white pine stocking and restocking*.....	18,383	(128,681. ^{Pine} Stocking (21,929. Restocking
White pine restocking in pure merchantable and mixed white pine types.....	34,688**	64,429.
Totals.....	216,154	\$10,240,416.

*Excludes those "other types" which have 1-20% white pine (above restocking size), but do not contain white pine restocking.

**This acreage not included in total as it is already listed under pure and mixed white pine types.

Basis for estimating value of white pine: merchantable stumpage figured at normal value of \$7 per M - average volume per acre, pure merchantable white pine - 16 M bd. ft.; mixed white pine, 21-29% - 4 M bd. ft.; mixed white pine, 30-79% - 8 M bd. ft.; and white pine, above restocking size in other types - 1 M bd. ft. Pure stands of white pine under 6" DBH given normal value of \$25 per acre. Estimated normal per acre value of white pine restocking: degree of restocking, light = \$1, medium = \$2, heavy = \$3.

Stumpage prices under present abnormal conditions range from \$2 to \$6 per thousand board feet. This is, however, a temporary situation which should return to normal when economic conditions improve.

Ribes Conditions

Ribes are generally distributed and fairly abundant in Litchfield County. Over the remainder of the state, such bushes are few and localized. An average of 8.4 Ribes per acre have been pulled in conducting control work on 377,973 acres during the period of 1918-1934, inclusive.

Pine Infection Conditions

General in northern Litchfield County - only spot infections, mostly old cankers, over remainder of state.

Policy

In Litchfield County, where pine and Ribes are more or less generally distributed, cooperation is conducted with individuals and towns, foremen and scouts being furnished by the state. Outside Litchfield County, and 3 towns in Windham County, Ribes are comparatively few and localized; consequently, the control work is limited to scouting performed by State men. During 1933 and 1934, the regular cooperative work was necessarily curtailed due to the control activities conducted under the E.C.W., P.W.A., C.W.A., E.R.A. and C.P.A. Programs. All control work carried on under these emergency programs was supervised by the state blister rust control leader.

BLISTER RUST CONTROL IN CONNECTICUT
Average and Commercial Value of White Pine

Value	Average	
\$7,685.08	35.697	Pure white pine (80-100% pine) - (Over 6" DBH.....)
1,018.25	10.729	(Under 6" DBH.....)
1,618.25	27.794	Mixed white pine - (51-59% pine in mixture.....)
3,726.85	66.251	(30-49% pine in mixture.....)
		Other types with scattered white pine stocking and restocking.....
(158,681.21)	18.787	
(51,929.21)		
		White pine restocking in pure merchantable and mixed white pine types.....
\$4,452	31.688**	
\$10,240.11	216.124	Totals.....

*Excludes those "other types" which have 1-50% white pine (above restocking size), but do not contain white pine restocking.
**This average not included in total as it is already listed under pure and mixed white pine types.

Notes for estimating value of white pine merchantable stumpage figured at normal value of \$7 per M - average volume per acre, pure merchantable white pine = 16 M. 6. 76; mixed white pine, 51-59% = 1 M bd. ft.; mixed white pine, 30-49% = 8 M bd. ft.; and white pine, above restocking size in other types = 1 M bd. ft. Pure stands of white pine under 6" DBH given normal value of \$25 per acre. Estimated normal per acre value of white pine restocking: degree of restocking, light = \$1, medium = \$5, heavy = \$7.

Stumpage prices under present abnormal conditions range from \$5 to \$6 per thousand board feet. This is, however, a temporary situation which should return to normal and economic conditions improve.

Ribes Conditions

Ribes are generally distributed and fairly abundant in Litchfield County. Over no remainder of the state, such bushes are few and localized. An average of 3 1/2 Ribes per acre have been pulled in conducting control work on 377.973 acres during the period 1918-1924, inclusive.

Pine Infection Conditions

General in northern Litchfield County - only spot infections, mostly old stumps, over remainder of state.

Policy

In Litchfield County, where pine and Ribes are more or less generally distributed, cooperation is conducted with individuals and towns, former and accounts being furnished by the state. Outside Litchfield County, and 3 towns in Windham County, Ribes are comparatively few and localized; consequently, the control work is limited to accounting performed by State men. During 1923 and 1924, the regular cooperative work was necessarily curtailed due to the control activities conducted under the E.C.W., F.W.A., C.W.A., E.E.A. and C.P.A. Programs. All control work carried on under these emergency programs was supervised by the state blister rust control leader.

Informational and Service Activities of Permanent and Temporary Agents
1923-1934

Informational

Meetings addressed.....	47	Publications distributed*.....	12,155
Attendance.....	1,940	Mimeo. articles dist. (1928-1934)*...	91
Field demonstration meetings**.....	31	Items published.....	641
Attendance**.....	693	Posters and signs placed*.....	569
Displays placed.....	117	Roadside dem. placed (1930-1934)***	24

Service

Initial interviews.....	4,076	Persons instructed in field.....	1,533
Follow-up calls.....	3,033		

*No record kept of these items after April 30, 1934.

**Included with "Meetings addressed" after April 30, 1934.

*** " " "Displays placed" " " " " "

Town and Individual Cooperation in Blister Rust Control Work

During the period 1918-1934, inclusive, a total of \$14,111.89 has been expended from 25 town appropriations for control work. Of this total \$841.00 was expended for special black currant elimination work in 1934. The town funds include subscriptions by individuals in a few instances. In addition, 486 individual cooperators have spent \$8383.69 for control work on their properties. The expenditures by individuals include \$76.25 paid by individual cooperators (nurserymen) during 1930 to 12 owners of cultivated Ribes for the destruction of 114 bushes - also include \$761.36 spent by individuals on special nursery sanitation work during 1930-1934, inclusive.

Results of Ribes Eradication Work, 1918-1934, Inclusive
(Initial and Re-eradication)

Program	Acreage Worked	Ribes Pulled							Per Acre	
		Wild	Cult.	State	Towns	Indiv.	Gov't.	Total	Cost	Ribes
Regular	265,711	2,059,714	22,282	46,940.17	12,187.89	7,546.08	9,591.44	76,265.58	.237	7.8
E.C.W.	95,990	786,433	902	-	-	-	31,900.59	31,900.59	.332	8.2
P.W.A.	8,107	238,219	-	-	-	-	9,983.62	9,983.62	1.23	35.6
E.R.A.	8,165	22,326	483	- 8.35	1,083.00	-	5,143.35	6,234.70	.764	2.7
Total	377,973	3,156,692	23,667	46,948.52	13,270.89	7,546.08	56,619.00	124,384.49	.329	8.4

This summary excludes the special nursery sanitation work performed during the period 1930-1934, inclusive, when a separate record was kept of this project.

The cost of the regular Ribes eradication work includes owners' labor (valued at 40 cents per hour) and all expenditures for wages of laborers, scouts, and foremen employed in locating and pulling Ribes. It also includes the cost of maintaining the state eradication crew camps, cost of crew transportation and miscellaneous expenses for trail paper, picks, etc. In the case of the E.C.W. personnel, the cost of their total time on Ribes eradication work was figured at the rate of \$1.35 per eight hour man day in 1933 and \$1.40 in 1934.

The \$5,143.35 Government expenditure under the E.R.A. Program includes \$238.20 P.W.A. funds.

Control work was conducted from 7 C.C.C. Camps during 1933 and from 8 camps in 1934.

Loge 23 Jan 1971

Publication	Year	Volume	Page	Author
Publications of the	1971	1	1-10	Smith, J.
Mathematical	1972	2	11-20	Johnson, A.
Statistics	1973	3	21-30	Williams, B.
Journal of	1974	4	31-40	Brown, C.
Psychology	1975	5	41-50	Green, D.
Research	1976	6	51-60	White, E.
Methods	1977	7	61-70	Black, F.
Applications	1978	8	71-80	Gray, G.
Reviews	1979	9	81-90	Gold, H.
Index	1980	10	91-100	Silver, I.

2000

*No record kept of these items after April 30, 1978.
**Included with "Masterson addressed" after April 30, 1978.
*** "Display placed"

.....
.....
.....

Initial interview
Follow-up calls.....

Person interviewed in field.....

1-27

_____ Town and Industrial Cooperation in Elites East Control Unit

During the period 1912-1934, inclusive, a total of \$10,111.59 has been expended for 25 town appropriations for control work. Of this total \$841.00 was expended for special black current elimination work in 1934. The town funds include subscriptions by individuals in a few instances. In addition, 485 individual cooperators have spent \$1787.60 for control work on their properties. The expenditures by individuals include \$75.25 paid to individual cooperators (unemployed) during 1930 to 19 owners of cultivated land. The destruction of 110 bushes - also included \$751.36 spent by individuals on special town elimination work during 1930-1934, inclusive.

(Intelligence and Development)

System	Working	Idle	Cost	State	Amount	Value	Profit	Total	Cost per
1.0	25.00	25.00	25.00	1.0	25.00	25.00	25.00	25.00	25.00
2.0	25.00	25.00	25.00	2.0	25.00	25.00	25.00	25.00	25.00
3.0	25.00	25.00	25.00	3.0	25.00	25.00	25.00	25.00	25.00
4.0	25.00	25.00	25.00	4.0	25.00	25.00	25.00	25.00	25.00
5.0	25.00	25.00	25.00	5.0	25.00	25.00	25.00	25.00	25.00
6.0	25.00	25.00	25.00	6.0	25.00	25.00	25.00	25.00	25.00
7.0	25.00	25.00	25.00	7.0	25.00	25.00	25.00	25.00	25.00
8.0	25.00	25.00	25.00	8.0	25.00	25.00	25.00	25.00	25.00
9.0	25.00	25.00	25.00	9.0	25.00	25.00	25.00	25.00	25.00
10.0	25.00	25.00	25.00	10.0	25.00	25.00	25.00	25.00	25.00

This summary excludes the special nursery sanitation work performed during the period 1970-1974. Inclusive, when a separate record was kept of this project.

The cost of the regular Ribes eradication work included owners' labor (valued at 10 cents per hour) and all expenditures for wages of laborers, scouts, and foremen employed. It also included the cost of maintaining the state eradication area composed of crew transportation and miscellaneous expenses for trail pay, lunch, etc. In the case of the U.S. personnel, the cost of their local time on Ribes eradication work was figured at the rate of \$1.25 per eight hour man day in 1957 and \$1.40 in 1958.

The \$2,107.35 Government expenditure under the E.R.A. Program includes \$278.50

Control work was conducted from 1947 to 1950. Camps during 1947 and from 8 camps in 1948.

Results of First Re-eradication of Ribes, 1923-1934, Inclusive

Acreage Re-Worked	Ribes Pulled		Total Cost	Per Acre	
	Wild	Cult.		Cost	Ribes
36,161	448,596	3,706	\$22,654.93	.626	12.4
68,105	730,772	183	28,815.17	.423	10.7
8,107	288,219	-	9,983.62	1.23	35.6
112,373	1,467,587	3,889	61,453.72	.547	13.1

No direct comparison is practicable between the per acre cost of the re-eradication and the per acre cost of all Ribes eradication, since there is a variation in the work involved and in the sites examined. Most of the re-eradication to date has been in areas requiring crew work.

Status of Regular Ribes Eradication Work - December, 1934

Area	Acreage of Control Area	Acreage of Control Area Worked	Percentage of Control Area Worked*	Acreage Still in need of Protection	Acreage of White Pine	
					Total in Control Area	Est. Acreage Protected
Commercial	287,534	265,600	92.4	21,934	139,977	129,339
Residential	200,787	112,373	56.0	88,414	97,183	54,726

*The percentages are the same for the pine area protected.

The "control area" for the initial work comprises the acreage initially cleared of Ribes to date plus the acreage still in need of initial protection-the latter figure being an estimate supplied by the state leader in 1934. The pine acreage in the control area was estimated to be the acreage of the pure and mixed (30-79%) pine in the state. The acreage of pine protected was computed on the basis of its being the same proportion of the total control area as the total pine in the total control area.

The "control area" for the re-eradication program is based on the total area initially cleared of Ribes during the period 1918-1929, inclusive, or on the assumption that all areas initially worked prior to five years ago now need re-examination for Ribes.

Nursery Sanitation

Status of Nursery Sanitation Work - December, 1934

	Number of Nurseries Growing 500 or More White Pines				Number of Nurseries Protected from Blister Rust			
	Reforestation Only	Ornamental Only	Both	Total	Reforestation Only	Ornamental Only	Both	Total
Commercial Nurseries	0	8	6	14	0	4*	6	10
State Nursery	1	-	-	1	1	-	-	1
Total	1	8	6	15	1	4	6	11

*Three additional nurseries established sanitation zones, but abandoned them.

Summary of White Pine Re-eradication of Ribes, 1927-1934, Inclusive

Location	Acres Re-eradicatd	Ribes Pulled Wet	Total Cost	Total Acres
Commercial	118,373	1,487,587	61,447.75	17.1
State	8,107	288,819	9,987.65	12.6
C.W.	68,105	770,775	28,877.17	10.7
Private	76,161	118,796	22,654.93	12.4
Total	260,546	2,567,981	112,967.47	52.8

No direct comparison is practicable between the per acre cost of the re-eradication work and the per acre cost of all Ribes eradication, since there is a variation in the acreage involved and in the sites examined. Most of the re-eradication to date has been in sections requiring crew work.

Status of Regular Ribes Eradication Work - December, 1934

Location	Acres of Control Area	Acres of Control Area Worked	Percentage of Control Area Worked*	Acres Still in Need of Protection	Total in Control Area Protected	Acres of White Pine Total in Control Area
Commercial	287,574	265,600	92.4	21,974	229,977	129,339
State	200,787	112,373	56.0	88,414	97,163	24,756

*The percentages are the same for the pine area protected.

The "control area" for the initial work comprises the acreage initially cleared of Ribes to date plus the acreage still in need of initial protection-the latter figure being an estimate supplied by the state lands in 1934. The pine acreage in the control area was estimated to be the acreage of the pure and mixed (30-70%) pine in the state. The acreage of pine protected was computed on the basis of its being the same proportion of the total worked area as the total pine in the total control area.

The "control area" for the re-eradication program is based on the total area initially cleared of Ribes during the period 1918-1929, inclusive, or on the assumption that those initially worked prior to five years ago now need re-examination for Ribes.

Nursery Sanitation

Status of Nursery Sanitation Work - December, 1934

Location	Number of Nurseries Growing 500 or More White Pine		Number of Nurseries Protected from Ribes Root	
	Only	Both	Only	Both
Commercial	0	8	0	10
State	1	-	1	-
Private	1	6	1	6
Total	2	14	2	16

*Three additional nurseries established sanitation zones, but abandoned them.

During the fall of 1927, 158 owners of nurseries were interviewed regarding blister rust control. Sixteen owners, desiring to ship pine out of New England, agreed to cooperate in maintaining official control areas around their nurseries. A preliminary Ribes survey of these areas resulted in sanitation zones being established around 11 of the nurseries in 1928. These nurseries were reworked in 1929. During the fall of 1929, the state leader made a survey of nurseries having or considering sanitation zones to determine the owners' attitude towards state maintenance of these zones with the nurserymen contributing a substantial part of the costs. All agreed to cooperate in amounts ranging from \$25 to \$100 annually. Since 1930 blister rust control has been maintained around the state nursery and from 8-12 private nurseries.

Results of Ribes Eradication in Connection with Nursery Sanitation Project, 1930-1934
(Not included in preceding Ribes eradication summaries)

Type of Work	Acreage Worked	Ribes Pulled		Total Cost	Per Acre	
		Wild	Cult.		Cost	Ribes
Initial eradication	7,157	5,839	152	\$882.21	.123	0.8
Re-eradication	35,705	7,898	838	4,894.93	.137	0.2
Total	42,862	13,737	990	5,777.14	.135	0.3

Prior to 1930, the data for the nursery sanitation were not kept separate and were included in regular Ribes eradication summaries. A summary supplied by the state leader (based on incomplete data) shows that from 1927-1929, inclusive, an additional 10,922 acres were cleared of 1,242 wild Ribes and 3,267 cultivated bushes at a total cost of \$1,707.36. Of this work prior to 1930, 5,580 acres were re-eradication, a total of 1,083 wild Ribes and 1,431 cultivated bushes being removed at a cost of \$694.90.

Total Cost of All Ribes Black Currant Eradication

In July, 1929, the Connecticut Legislature passed a bill prohibiting the planting, selling or possession of Ribes nigrum in the state. A systematic campaign to eradicate Black Currents was inaugurated During 1930 in connection with a census of cultivated Ribes. Such work has been continued each succeeding year and as a result the project has been completed in 70 towns: a total of 2,763 Ribes nigrum and 41,195 other cultivated Ribes being destroyed at a cost of \$39,816.03.

Cultivated Ribes Compensation, 1918-1934

Total number of cultivated bushes destroyed.....	68,619
Total number of bushes paid for.....	175
Number of persons paid compensation.....	16
Amount paid in reimbursement.....	\$103.50

No compensation was paid prior to 1929. These compensation figures include \$76.25 paid by individual cooperators (nurserymen) during 1930 to 12 owners of cultivated Ribes for the destruction of 114 bushes.

Cultivated Ribes Compensation, 1918-1934		Total Cost of All Ribes Eradication, 1918-1934	
Year	Amount Paid	Year	Amount Paid
1918	\$103.50	1918	\$103.50
1919		1919	
1920		1920	
1921		1921	
1922		1922	
1923		1923	
1924		1924	
1925		1925	
1926		1926	
1927		1927	
1928		1928	
1929		1929	
1930		1930	
1931		1931	
1932		1932	
1933		1933	
1934		1934	
Total	\$103.50	Total	\$103.50

Surveys

During 1920 and 1921, all pine areas in the commercial pine range were mapped on U.S.G.S. sheets, and an estimate made of their contents - data used as a basis for control work and for informational purposes. Epidemiology survey during 1926 of white pine and other types, Ribes and infection conditions - data summarized at Boston Office. During the winter of 1931-1932, a pre-eradication survey was made in the town of Cornwall. A detailed report of this survey is given in Vol.16, No.11 of the Blister Rust News. During 1933-1935, pine and control area mapping was conducted under the Regular, E.C.W, P.W.A & E.R.A. programs, during the late fall, winter and early spring months. Up to May 31, 1935, a total of 107,997 acres were mapped in detail and an additional 1,321,022 acres were examined but not mapped due to lack of sufficient pine to justify control measures. These mapping projects required 2408 man days labor.

INVESTIGATIONS

Ribes regrowth and effectiveness of control study by Endersbee, report prepared crew experiment by Riley, preliminary report submitted-studies made by Clark and Riley during 1929 to determine effectiveness of control and need for re-protection - data summarized. In 1930 and 1931 strip line studies were made in Canaan, North Canaan, and Salisbury to determine the amount of blister rust infection in these towns. The data were used to show the need for eradication work. Two permanent pine infection data plots have been established in the town of Salisbury and a similar study plot was made in Cornwall during 1932. A special report of Plot #1 in Salisbury was prepared by Riley, and the details of Plot #2 are given in his 1931 annual report. The data for the Cornwall plot is given in Riley's 1932 annual report. A chemical eradication of Ribes study was started in 1932 under the direction of Plunguian. Tentative results indicate that the cost of such work is excessive compared to the hand pulling method. The state leader is also cooperating in the study to determine the immunity of the Viking currant to blister rust infection.

Total Cost of All Blister Rust Control Work, 1918-1934, Inclusive

State B.R. Approp.	Other State Approp.	Indiv. and Towns	B.P.I.	E.C.W.	P.W.A.	C.W.A.	E.R.A. & C.P.A.	Total
114,276.05	1127.82	22,495.58	103,065.16	46,258.77	18,679.05	5938.10	30,925.25	342,765.78

The total expenditures for all control work include cost of administration, supervision, blister rust control agent activities, Ribes eradication, nursery sanitation, black currant eradication, field investigation, Ribes compensation, and miscellaneous.

Relation of Total Cost of All Control Activities to Total Commercial Value of White Pine

Acreage of White Pine	Commercial Value of White Pine	Total Cost of All Control Activities, 1918-1934, Inclusive	% Total Commercial Value of White Pine Represented by cost of All Con- trol Work.
216,154	\$10,240,416	\$342,765.78	3.3

Surveys

During 1930 and 1931, all pine areas in the commercial pine range were mapped on 200' sheets, and an estimate made of their contents - data used as a basis for control and for informational purposes. Epidemiology survey during 1930 of white pine and other types, Ribes and infection conditions - data summarized at Boston Office. During the winter of 1931-1932, a pre-eradication survey was made in the town of Cornwall. A detailed report of this survey is given in Vol. 16, No. 11 of the Blister Rust News. During 1932, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

INVESTIGATIONS

Ribes regrowth and effectiveness of control study by Underwood, report prepared by Riley, preliminary report submitted-studies made by Clark and Riley. During 1932 to determine effectiveness of control and need for re-eradication - data summarized. In 1930 and 1931 strip line studies were made in Canaan, North Canaan, and Salisbury to determine the amount of blister rust infection in these towns. The data are used to show the need for eradication work. Two permanent pine infection data plots have been established in the town of Salisbury and a similar study plot was made in Cornwall. A special report of 1931 in Salisbury was prepared by Riley, and the data of 1932 are given in his 1931 annual report. The data for the Cornwall plot is given in Riley's 1932 annual report. A chemical eradication of Ribes study was started in 1932 under the direction of Flanagan. Tentative results indicate that the cost of such work is excessive compared to the band killing method. The state leader is also cooperating in the study to determine the immunity of the Viking current to blister rust infection.

Total Cost of All Blister Rust Control Work, 1918-1934, Inclusive

to B.R. Prop.	Other State and Towns	Indiv.	B.P.I.	E.C.W.	P.W.A.	O.W.A.	E.R.A. & O.T.A.	Total
278.05	117.82	22,492.55	103,065.16	46,256.77	18,679.05	6536.10	30,925.25	342,765.78

The total expenditures for all control work include cost of administration, supervision, blister rust control agent activities, Ribes eradication, nursery sanitation, blight eradication, field investigation, Ribes compensation, and miscellaneous.

Relation of Total Cost of All Control Activities to Total Commercial Value of White Pine

to Pine	Commercial Value of White Pine	Total Cost of All Control Activities, 1918-1934, Inclusive	% Total Commercial Value of White Pine Represented by cost of All Control Work.
2,134	110,240,416	\$342,765.78	2.3

Comparison Between Cost Per Acre Based on Ribes Eradication Costs Only and
on Costs of All Control Projects, 1918-1934, Inclusive.

Ribes Per Acre	Cost Per Acre							
	Based on Ribes Eradication Costs Only				Based on Total Expenditures			
	1918 - 1934		Average Per Year		1918-1934		Average Per Year	
	Total Area Worked	Pine Area Worked	Total Area Worked	Pine Area Protected	Total Area Worked	Pine Area Protected	Total Area Worked	Pine Area Protected
8.4	.329	.676	.019	.040	.907	1.86	.053	.109

Future Work

Complete initial control work - 21,934 acres. Re-examination of 1918-1929 initial control areas that have not been re-eradicated of Ribes, 88,414 acres; estimate 50 per cent or 44,207 acres, will need intensive reworking. Complete survey of Ribes nigrum and elimination of these bushes in state - nursery sanitation measures applied to all nurseries growing white pine - complete inspection of all white pine plantations in state - additional studies to determine effectiveness of control work.

on Costs of All Control Projects, 1918-1974, Inclusive.

[illegible]

How: 071500

Complete initial control work - 21,974 acres. Re-examination of 1918-1929 initial control areas that have not been re-examined of Ribes, 28,414 acres; estimate 50 per cent. Complete survey of Ribes nigrum and elimination of these bushes in state - nursery sanitation measures applied to all nurseries growing white pine - complete inspection of all white pine plantations in state - additional studies to determine effectiveness of control work.

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BLISTER RUST CONTROL IN NEW YORK

Acreage and Commercial Value of White Pine

	<u>Acreage</u>	<u>Value</u>
Pure white pine (80-100% pine) - (Over 6" DBH....	214,600	\$24,035,200.
(Under 6" DBH....	457,171	11,429,275.
Mixed white pine - (20-29% pine in mixture.....	231,699	6,487,572
(30-79% pine in mixture.....	242,218	13,564,208
Other types with scattered white pine stocking and restocking*.....	170,269	(1,191,883.-Fine stocking (221,237.-Restocking
White pine restocking in pure merchantable and mixed white pine types.....	115,835**	197,847.
Totals.....	1,315,957	\$57,127,222.

*Excludes those "other types" which have 1-20% white pine (above restocking size), but do not contain white pine restocking.

**This acreage not included in total as it is already listed under pure and mixed white pine types.

Basis for estimating value of white pine: merchantable stumpage figured at normal value of \$7 per M - average volume per acre, pure merchantable white pine = 16 M bd. ft.; mixed white pine, 21-29% = 4 M bd. ft.; mixed white pine, 30-79% = 8 M bd. ft.; and white pine, above restocking size in other types = 1 M bd. ft. Pure stands of white pine under 6" DBH given normal value of \$25 per acre. Estimated normal per acre value of white pine restocking: degree of restocking, light = \$1, medium = \$2, heavy = \$3.

Stumpage prices under present abnormal conditions range from \$2 to \$6 per thousand board feet. This is, however, a temporary situation which should return to normal when economic conditions improve.

Ribes Conditions

Wild Ribes are generally distributed throughout the state, being most abundant in the northeastern portion of Lewis and Warren Counties. In this section there occurs especially heavy concentrations of large size Ribes rotundifolium. The Ribes in the western half of New York are more localized and much of the control work can be done by scouting methods.

Pine Infection Conditions

General and abundant in commercial white pine range of the state, especially in Lewis and Warren Counties; spot infections in other parts caused principally by infected stock or Ribes nigrum. In generally infested region, on a basis of township units, the per cent of diseased pine ranges from 1-30 per cent of the total amount of pine. Also, see strip line data under "Surveys".

In unprotected areas, studies were made during 1934 in 10 plots comprising 5.95 acres in 7 towns. Blister rust had infected 1764 white pines, or 39.7% of the 4445 trees of this species. Most of the 2793 cankers were of recent origin. In fact, over 48% of them originated during the period 1928-1932, which shows the danger of delaying protection work.

one station to assist in the investigation.

Total.....	1,315.957		
Mixed white pine types.....	115.875*		
White pine restocking in pure merchantable and other types with scattered white pine stocking and restocking.....		170.263	(S21,237--Restocking)
			(S1,191,833--Pine stock)
		242,218	
(50-75% pine in mixture.....	531.699		
Mixed white pine --(50-85% pine in mixture.....	6,487.572		
Pure white pine (50-100% pine) --(Over 6" DBH....	157.171		
		11,123,575	
		252,037,500	
			Value
			Acreage

*This series is not included in total as it is already listed under
pure and mixed white pine types.
*Excludes those "other types" which have 1-20% white pine (above
restocking stage), but do not contain white pine restocking.

estockings: degree of restocking, light = \$1, medium = \$2, heavy = \$3.
DNR given normal value of \$25 per acre. Estimated normal per acre value of white pine
line, above restocking also in other types = 1 M 50.4t. Pure stands of white pine under
mixed white pine, 51-59% = 4 M 50.4t.; mixed white pine, 30-50% = 3 M 50.4t.; and white
also of \$1 per M - average volume per acre, pure merchantable white pine = 12 M 50.4t.;
Basis for estimating value of white pine: merchantable stumpage figured at normal

Storage prices under present abnormal conditions range from \$4 to \$6 per thousand
bushels. This is, however, a temporary situation which should return to normal when
economic conditions improve.

1963-1964

Wild Hides are generally distributed throughout the state, being most abundant in the northeastern portion of Lewis and Warren Counties. In this section there occurs especially heavy concentrations of large also Hides rotundiformes. The Hides in the western part of New York are more localized and much of the control work can be done by scouting.

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General and abundant in commercial white pine ranges of the state, especially in Lewis and Clark County; spot infections in other parts caused principally by infected stock or diseased seedlings. In generally infected region, on a basis of township units, the per cent of infected pine ranges from 1-50 per cent of the total amount of pine. Also, see strip line "Survey".

During the period 1925-1932, which shows the danger of delaying protection work. Most of the 2193 censors were of recent origin. In fact, over 48% of these originated in Y towns. District rent had totaled 1564 where pine, or 34.1% of the 1919 trees of this In unprotected areas, studies were made during 1934 in 10 plots comprising 5.35 acres

Policy

Protection of white pine on state lands and on lands owned by counties and individuals. State cooperates with such owners by furnishing, at state expense, foremen to supervise control work. In the future, control work on the state forest preserve will be restricted chiefly to pine areas of scenic importance; isolated pine areas of medium or old growth will not be protected. During 1933 and 1934, the regular cooperative work was necessarily curtailed due to the activities conducted under the F.C.W., F.W.A., and F.R.A. Programs. All control work carried on under these emergency programs, including projects at 8 O.C.C. Camps in 1933 and 29 camps during 1934, was supervised by the district blister rust control agents.

Informational and Service Activities of Permanent and Temporary Agents, 1923-1934.

Informational

Meetings addressed.....	1061	Publications distributed*.....	133,570
Attendance.....	85,444	Mimeo.articles dist.(1928-1934)*.....	3,595
Field demonstration meetings**	269	Items published.....	2,157
Attendance**.....	4,682	Posters and signs placed*.....	9,049
Displays placed.....	483	Roadside dem. placed (1930-1934)***..	8

Service

Initial interviews.....	22,577	Persons instructed in field.....	14,953
Follow-up calls.....	17,360		

*No record kept of these items after April 30, 1934.

**Included with "Meetings addressed" after April 30, 1934.

*** " " "Displays placed" " " " " "

County and Individual Cooperation in Blister Rust Control Work 1918-1934, Inclusive

During the period 1929-1934, inclusive, a total of \$7474.64 has been expended from 30 county appropriations made for blister rust control work. From 1918-1934, inclusive, 5798 individual cooperators spent \$168,347.28 for Ribes eradication work on their properties. The expenditures by individuals include \$212.67 expended on nursery sanitation work from 1930-1934, inclusive.

Results of Ribes Eradication Work, 1918-1934, Inclusive (Initial and Re-eradication)

Program	Acreage Worked	Ribes Pulled					Cost		Per Acre	
		Wild	Cult.	State	Indiv.	Counties	Govt.	Total	Cost	Ribes
Regular	1,046,245	20,475,073	60,603	477,380.41	168,134.61	7474.64	116,914.06	769903.72	.736	19.6
F.C.W.	174,826	6,329,718	5,155	2,600.00	-	-	137,339.98	139,939.98	.800	36.2
F.W.A.	44,971	737,304	5,549	7,287.15	-	-	19,216.99	26,504.14	.589	16.4
F.R.A.	2,623	53,880	-	1,159.77	-	-	1,338.37	2,498.14	.952	20.5
Total	1,268,665	27,595,975	71,307	488,427.33	168,134.61	7474.64	274809.40	938,845.98	.740	21.8

Special nursery sanitation work for the period 1930-1934, inclusive, is not included in this summary.

The cost of the Ribes eradication projects includes owner labor (valued at 40 cents per hour) and expenditures by all agencies for wages of laborers, linemen, scouts, and

foremen employed in locating and pulling Ribes. It also covers the cost of maintaining the store eradication camps - cost of crew transportation and miscellaneous expenses for trail paper, picks, etc. In the case of the E.C.W. personnel, the cost of their total time on Ribes eradication work was figured at the rate of \$1.35 per eight hour day in 1933 and \$1.40 in 1934.

Results of First Re-eradication of Ribes, 1923-1934, Inclusive

Program	Acreage Re-Worked	Ribes Pulled		Total Cost	Per Acre	
		Wild	Cult.		Cost	Ribes
Regular	122,409	769,163	2,822	42,357.42	.346	6.3
E.C.W.	46,065	1,344,931	447	41,315.63	.897	29.2
P.W.A.	25,415	268,858	3,808	16,216.35	.638	10.6
E.R.A.	1,253	6,804	-	807.45	.644	5.4
Total	195,142	2,389,756	7,077	100,696.85	.516	12.2

No direct comparison is practicable between the per acre cost of the re-eradication work and the corresponding cost of the initial eradication work (which has averaged 78.1 cents to date) since there is a variation in the acreage involved and consequently in the sites examined. The figures do however indicate a decreased cost for re-eradication work.

Status of Regular Ribes Eradication Work - December, 1934

Program	Acreage of Control Area	Acreage of Control Area Worked	Percentage of Control Area Worked*	Acreage Still In Need of Protection	Acreage of White Pine	
					Total in Control Area	Est. Acreage Protected
Initial	1,788,335	1,073,523	60.0	714,812	829,352	497,611
Re-Erad.	462,039	195,142	42.2	266,897	214,386	90,516

*The percentages are the same for the pine area protected.

The total "control area" for the initial work includes the total acreage initially cleared of Ribes to date plus the acreage still in need of initial protection. The latter figure is based on 1934 estimates made by the blister rust control agents of the acreage still to be worked in each town of their districts. Outside the agents' districts, the area still to be worked was estimated to be the acreage of the pure and mixed (30-70%) white pine plus an additional 50 per cent acreage for protection zones. The acreage of white pine in the control area was estimated to be 60 per cent of the entire area. Likewise, the acreage of pine protected was assumed to represent 60 per cent of the worked portion of the control area.

The "control area" for the re-eradication program is based on the total area initially cleared of Ribes during the period 1918-1929, inclusive, or on the assumption that all areas initially worked prior to five years ago now need re-examination for Ribes. The same proportion (60%) was used for compiling the pine acreages for the re-eradication work.

Nursery Sanitation

Status of Nursery Sanitation Work - December, 1934

	No. Nurseries Growing White Pines				Number Protected from Blister Rust			
	Reforestation Only	Ornamental Only	Both	Total	Reforestation	Ornamental Only	Both	Total
Commercial nurseries	-	262	1	263	-	-	1	1
State nurseries	7	-	-	7	7	-	-	7
Total	7	262	1	270	7	-	1	8

During the past several years, sanitation measures have been applied to protect the pine areas in the state nurseries. The protection zones were for some time maintained at 900 feet. During 1928, this distance was increased to 1500 for all Ribes, except nigrum, which were eradicated within one mile of the pine areas. To date, Ribes nigrum have been eradicated from within one mile of each of the seven state nurseries (including Syracuse nursery) and the 900 foot Ribes free zones have been completely extended to 1500 feet.

In addition to the state nurseries, there are 262 commercial nurseries growing white pine in New York. These private pine-growing nurseries contained 364,544 white pines in 1932. Of this total number of trees, 207,700 were located in three nurseries. Only 58 of the private nurseries were growing 500 or more white pine, and only 10 had 5,000 or more of such trees. During 1928, the first attempt was made to establish protection zones surrounding some of these nurseries, particularly in Wayne and Westchester Counties. It soon became apparent that cultivated Ribes were extremely abundant in the vicinity of the various nurseries. As compensation had to be paid for such bushes destroyed, it was evident the work would have to be limited. Therefore, it was restricted to a general survey to determine and record Ribes conditions in the environs of the nurseries in these counties and to the eradication of Ribes nigrum in such situations. According to the revised state blister rust law, effective February 17, 1930, no compensation shall be paid by the state for any species of Ribes destroyed in connection with the establishment of Ribes free zones around commercial nurseries, but fair compensation for such bushes must be paid by the person owning or operating the protected nursery.

During 1930, a Federal pine shipping permit was issued to the Jackson & Perkins Nursery of Newark, New York. This company may therefore ship white pines interstate according to the regulations of Quarantine 63. This is the only private nursery in New York that has desired to establish sanitation zones.

Results of Nursery Sanitation Work in New York During Period
1930-1934, Inclusive

Type of Work	Acreage Worked	Ribes Pulled		Total Cost	Per Acre	
		Wild	Cult.		Cost	Ribes
Initial eradication	3,110	26,017	634	\$1,225.55	.394	8.4
Re-eradication	46,903	95,327	1,088	14,254.47	.304	2.0
Total	50,013	121,344	1,722	15,480.02	.310	2.4

Since 1930, a separate record has been kept of the nursery sanitation work and the data have not been included in the regular Ribes eradication summaries.

An attempt was made to compile a summary of the nursery sanitation work prior to 1930 but in some instances it was not possible to separate the data. An incomplete summary based on available records shows that during the period 1925-1929, a total of 17,782 acres were cleared of 138,842 wild Ribes and 294 cultivated bushes at a total cost of \$6,735.22. Of this work, 9,020 acres were re-eradication; 97,047 wild and 294 cultivated Ribes being destroyed at a cost of \$4,795.28.

During the past several years, sanitation measures have been applied to protect the aspen in the state nurseries. The protection zones were for some time maintained at 100 feet. During 1928, this distance was increased to 1500 feet for all Ribes, except Ribes which were eradicated within one mile of the pine aspen. To date, Ribes plants have been eradicated from within one mile of each of the seven state nurseries (including Syracuse nursery) and the 900 foot Ribes zones have been completely extended to 1500 feet.

In addition to the state nurseries, there are 265 commercial nurseries growing white pine in New York. These private pine-growing nurseries contained 865,544 white pines in 1925. This total number of trees, 207,700 were located in three nurseries. Only 28 of the private nurseries were growing 500 or more white pines, and only 10 had 2,000 or more of such trees. During 1928, the first attempt was made to establish protection zones surrounding some of these nurseries, particularly in Wayne and Westchester Counties. It soon became apparent that cultivated Ribes were extremely abundant in the vicinity of the various nurseries. As compensation had to be paid for such bushes destroyed, it was evident the work would have to be limited. Therefore, it was restricted to a general survey to determine and record Ribes conditions in the environs of the nurseries in these counties and to the eradication of Ribes within in such situations. According to the revised state blight law, effective February 17, 1930, no compensation shall be paid by the state for any species of Ribes destroyed in connection with the establishment of Ribes free zones around commercial nurseries. A fair compensation for such bushes must be paid by the person owning or operating the nursery.

During 1930, a Federal pine shipping permit was issued to the Jackson & Perkins nursery of Newark, New York. This company was therefore ship white pines interstate according to the regulations of Quarantine 67. This is the only private nursery in New York that is desired to establish sanitation zones.

Results of Nursery Sanitation Work in New York During Period 1930-1934, Inclusive

Type of Work	Acres Treated	Ribes Killed		Total Cost	Per Acre	
		Wild	Cult.		Cost	Ribes
Initial eradication	3,110	26,017	634	\$1,222.22	.394	8.4
Re-eradication	46,902	92,227	1,081	\$4,224.47	.306	2.6
Total	50,012	118,244	1,715	\$5,446.69	.310	5.4

Since 1930, a separate record has been kept of the nursery sanitation work and the results have not been included in the regular Ribes eradication summaries.

An attempt was made to compile a summary of the nursery sanitation work prior to 1930. In some instances it was not possible to separate the data. An incomplete summary based on available records shows that during the period 1925-1929, a total of 17,742 acres were treated of 128,342 wild Ribes and 294 cultivated bushes at a total cost of \$6,732.28. Of this, 9,020 acres were re-eradicated; 97,041 wild and 294 cultivated Ribes being destroyed at a cost of \$4,792.28.

Black Currant Eradication

The New York State law prohibits the possession of *Ribes nigrum*. A systematic campaign to eradicate such bushes was inaugurated in 1928. During the period 1928-1934, inclusive such work was completed in 198, and partially completed in 97 additional towns, out of a total of 1012 towns and cities in the state. As a result, 35,181 black currants and 761 other cultivated *Ribes* were destroyed at a total cost of \$26,451.05.

White Pine Blister Canker Elimination

In New York, the ornamental pines on the state reservation at Saratoga were examined during 1933 for infections by state employees. The area contains 75 acres of plantations about 20 years old. There is also considerable natural white pine scattered over some 700 acres of woodlands. The pines had previously been pruned to a height of 6 feet which aided materially in inspecting them for infection. The inspections disclosed a total of 113 diseased trees, 49 of which had died from blister rust. These dead trees were cut and limb infections were also removed from 64 other pines.

Elimination of blister rust cankers was also conducted in a 40-acre state plantation in the town of Hensonville in Greene County, New York. This work was done under the N.R.A. program by a 12-man crew during the period from September to November, 1933. The pines were pruned of lower branches to an average height of four feet, thereby eliminating a majority of the infections. All other visible branch cankers were removed, and the trees with stem infections were cut down.

Additional canker removal work was performed at Spruceton in Greene County and on the Wilcox plantation in Warren County. No figures are available at this time concerning the results accomplished on these two areas.

Cultivated Ribes Compensation 1918-1934

Total number of cultivated bushes destroyed.....	108,971
Number of bushes paid for.....	15,260
Number of persons paid compensation.....	1,066
Amount paid in reimbursement.....	\$5,150.04

Surveys

Strip line infection survey made by Brooks in 1920 - the pines on rod wide strips, totaling 28.4 miles in length, were examined; a total of 12,297 pines were inspected, and 5.1 per cent found diseased; 16 plots, totaling 15.1 acres, were laid out adjacent to the strips - 17.5 per cent of the 14,455 pines in these plots were diseased. In 1922, Fivaz made a similar strip study near Warrensburg of 12.1 miles in length and found 21 per cent of the 8,139 pines infected. During 1920 and 1921, Amadon made survey of white pine in parts of Essex and Warren Counties - the pine areas have been designated on U.S.G.S. maps, but no summary has been made of acreage or contents of the stands - maps used as basis for control work. Cartographical survey made by agents and Corliss, during 1926 and 1927, of white pine and other forest types, *Ribes*, and infection conditions - maps and summaries prepared at Boston Office. During the period 1927 to 1931, McIntyre had maps made of the pine and hardwoods types in all the main pine growing counties of the state. These maps have been of special use in control work. During 1932, a successful effort was made in two districts to refine the mapping system so as to obtain detailed information. Since 1932, this new mapping system has been effectively applied in all the agent districts. Such work conducted under the Regular, P.W.A., and E.R.A. Programs, during the late fall, winter, and early spring months of 1934 & 1935, resulted in 366,621 acres being mapped in detail, and an additional 188,728 acres examined but not mapped due to lack of sufficient pine to justify control work.

Black Turpentine Production

The New York State Law prohibits the possession of Ribes nigra. A systematic campaign to eradicate such bushes was inaugurated in 1928. During the period 1928-1934, inclusive, such work was completed in 1928, and partially completed in 1929, 1930, 1931, 1932, 1933, and 1934. A total of 1017 towns and cities in the state, as a result, 75,181 black currants and 761 other cultivated Ribes were destroyed at a total cost of \$26,451.05.

White Pine Blister Canker Elimination

In New York, the ornamental pines on the state reservation at Saratoga were examined during 1937 for infection by state employees. The area contains 75 acres of pines, some 700 acres of woodlands. There is also considerable natural white pine scattered over some 700 acres of woodlands. The pines had previously been pruned to a height of 6 feet which aided materially in inspecting them for infection. The inspection disclosed a total of 117 diseased trees, 19 of which had died from blister rust. These dead trees were cut and live infections were also removed from 64 other pines.

Elimination of blister rust cankers was also conducted in a 10-acre state plantation in the town of Horseville in Greene County, New York. This work was done under the W.R.A. program by a 12-man crew during the period from September to November, 1937. The pines were pruned of lower branches to an average height of four feet, thereby eliminating a majority of the infections. All other viable branch cankers were removed, and the trees with stem infections were cut down.

Additional canker removal work was performed at Sproutton in Greene County and on the Wilson plantation in Warren County. No figures are available at this time concerning the results accomplished on these two areas.

Cultivated Ribes Compensation
1934-1937

Amount paid in reimbursement.....	\$2,150.00
Number of persons paid compensation.....	1,066
Number of bushes paid for.....	15,260
Total number of cultivated bushes destroyed.....	108,971

Summary

Strip line infection survey made by Brooks in 1930 - the pines on red white stripes, totaling 38.4 miles in length, were examined; a total of 15,287 pines were inspected, and 5.1 per cent found diseased; 16 plots, totaling 15.1 acres, were laid out adjacent to the stripe - 17.5 per cent of the 14,452 pines in these plots were diseased. In 1932, 1933, and 1934, a similar strip study near Warrenburg of 15.1 miles in length and found 51 per cent of the 8,199 pines infected. During 1930 and 1931, Anthon made survey of white pine in part of Essex and Warren Counties - the pine areas have been designated on U.S.G.S. maps, but no summary has been made of acreage or contents of the stands - maps used as basis for control work. Cartographical survey made by agents and foresters, during 1935 and 1937, of white pine and other forest types, Ribes, and infection conditions - maps and summaries prepared at Boston Office. During the period 1927 to 1937, McIntyre had maps made of the pine and hardwood types in all the main pine growing counties of the state. These maps have been of special use in control work. During 1935, a successful effort was made in two districts to refine the mapping system so as to obtain detailed information. Since 1935, this new mapping system has been effectively applied in all the agent districts. Much work conducted under the Regional W.A. and E.R.A. Program, during the later fall, winter, and early spring months of 1934 and 1935, resulted in 765,621 acres being mapped in detail, and an additional 188,738 acres examined but not mapped due to lack of sufficient pine to justify control work.

This mapping required 3,251 man days labor.

Investigations

Selective Ribes eradication experiment at North Hudson - not completed - no report. Effectiveness of control study made by Fivaz - preliminary report only. Blister rust damage studies by York and Snell - published in Journal of Forestry. Ribes ecology studies by Littlefield and Fivaz - results of Fivaz's study published in 1931. Damage study of pine plantation at Schroon River - preliminary report prepared by Ford. During 1928, the pines were examined for infection in 30 plots (each approximately one acre in size) 15 of the plots being laid out in areas cleared of Ribes prior to 1925, and the other 15 in tracts not eradicated of such bushes in the same towns. The study showed that since the time of eradication, over fifteen times as much infection has originated in the unprotected tracts, as in the protected areas. During 1929, nine additional pairs of comparable plots were examined by the agents and the data summarized at the Boston Office. Three of the New York agents have cooperated since 1932 in the study to determine the immunity of the Viking currant to blister rust infection.

Effectiveness of Blister Rust Control

During 1934, plot and strip line studies were made to determine the amount of blister rust infection on white pines in protected and unprotected areas in New York. The disease had existed in these tracts since 1915. Ribes eradication in the control areas had been performed during the period of 1924 - 1929, inclusive. In protected areas, 11 plots, comprising 52.4 acres, were laid out in 8 townships and the white pines were examined carefully for infection. Out of a total of 5,915 pines, 1,882, or 31.8%, were infected with 2,652 cankers. However, only 103 of these cankers, or 3.9%, originated since the application of control measures, even though the protection work had been conducted 5 to 10 years previous. Infection conditions in protected areas were also determined in 5 towns by examining all pines under 20 feet in height on 2.55 miles of rod-wide strip lines. A total of 28.4% of the 4,952 pines on the strips were infected with 1,776 cankers, but only 1.46% of these infections originated since the control work was performed.

In unprotected areas, studies were made during 1934 in 10 plots comprising 5.95 acres in 7 townships. Blister rust had infected 1,764 white pines, or 39.7% of the 4,445 trees of this species. Most of the 2,793 cankers were of recent origin. In fact, over 48% of them originated during the period 1928-1932, which shows the danger of delaying protection work.

Total Cost of All Blister Rust Control Work, 1918-1934, Inclusive

State B.R. Approp.	Other State Approp.	Indiv.	Counties	B.P.I.	E.C.W.	P.W.A.	E.R.A.	Total
24,923.78	23,808.95	168,347.28	7,474.64	479,769.34	184,897.86	72,717.68	1,338.37	1,863,277.90

The total expenditures for all control work include cost of administration, supervision, blister rust control agent activities, Ribes eradication, eradication assistants, nursery sanitation, black currant eradication, field investigations, Ribes compensation, and miscellaneous.

Investigations

Selective Ribes eradication experiment at North Hudson - not completed - no report.
Effectiveness of control study made by Ribes - preliminary report only. Ribes root damage
studies by York and Hall - published in Journal of Forestry. Ribes ecology studies by
Hoffman and Ribes - results of Ribes study published in 1931. Damage study of pine
plantation at Johnson River - preliminary report prepared by York. During 1928, the pine
were examined for infection in 70 plots (each approximately one acre in size) 15 of the plots
being laid out in areas cleared of Ribes prior to 1925, and the other 15 in tracts not ex-
posed to such bushes in the same town. The study showed that since the time of eradica-
tion, over fifteen times as much infection has originated in the unprotected tracts, as in
the protected areas. During 1929, nine additional pairs of comparable plots were examined by
the agents and the data summarized at the Forest Office. Three of the New York agents have
cooperated since 1932 in the study to determine the frequency of the Ribes-resistant to blight
infection.

Effectiveness of Ribes Root Control

During 1934, plot and strip line studies were made to determine the amount of Ribes
infection on white pines in protected and unprotected areas in New York. The disease
exists in these tracts since 1915. Ribes eradication in the control areas had been per-
formed during the period of 1924 - 1929, inclusive. In protected areas, 11 plots, comprising
52.4 acres, were laid out in 8 townships and the white pines were examined carefully for in-
fection. Out of a total of 5,915 pines, 1,825, or 31.8%, were infected with S. 652 cankers.
However, only 10% of these cankers, or 7.9%, originated since the application of control
measures, even though the protection work had been conducted 5 to 10 years previous. Infection
conditions in protected areas were also determined in 5 towns by examining all pines
under 20 feet in height on 2.55 miles of red-wide strip lines. A total of 28.4% of the 4,925
pines on the strips were infected with 1,716 cankers, but only 1.4% of these infections or-
iginated since the control work was performed.

In unprotected areas, studies were made during 1934 in 10 plots comprising 5.95 acres
in 7 townships. Ribes root had infected 1,754 white pines, or 39.7% of the 4,415 trees of
this species. Most of the 2,797 cankers were of recent origin. In fact, over 48% of them
originated during the period 1928-1932, which shows the danger of delaying protection work.

Total Cost of All Ribes Root Control Work, 1918-1934, Inclusive

U.S. Forest Service	Indiv. Counties	B.F.I.	B.C.W.	P.W.A.	W.R.A.	Total
27,808.95	168,747.28	174,644.79	124,807.16	75,717.68	1,772.77	1,863,211.90

The total expenditures for all control work include cost of administration, supervision,
Ribes root control agent activities, Ribes eradication, eradication assistants, nursery
sanitation, black current eradication, field investigations, Ribes compensation, and miscel-
laneous.

Relation of Total Cost of All Control Activities to Total Commercial Value of White Pine

Acreage of White Pine	Commercial Value of White Pine	Total Cost of All Control Activities, 1918-1934, Inclusive	% Total Commercial Value of White Pine Represented by Cost of All Control Activities
1,315,957	\$57,127,222.	\$1,863,277.90	3.3

Comparison Between Cost Per Acre Based on Ribes Eradication Costs Only and on Cost of All Control Projects, 1918-1934, Inclusive

Ribes Per Acre	Cost Per Acre							
	Based on Ribes Eradication Costs Only				Based on Total Expenditures			
	1918-1934		Average Per Year		1918-1934		Average Per Year	
	Total Area Worked	Pine Area Protected	Total Area Worked	Pine Area Protected	Total Area Worked	Pine Area Protected	Total Area Worked	Pine Area Protected
21.8	.740	1.60	.044	.094	1.47	3.17	.086	.186

Future Work

Complete initial eradication work on state and individually owned lands - 714,812 acres (basis: estimates made during 1934 by agents of acreage still needing initial eradication work in each town, including both pine areas and protection strips. Outside the agent districts the areas in need of initial eradication were estimated to be the acreage of the pure and mixed (30-79 per cent) pine plus an additional 50 per cent for protection zones). Re-examination of 266,897 acres initially worked during 1918-1929 that have not been re-eradicated of Ribes - estimate 50 per cent, or 133,448 acres, will require intensive reworking. Elimination of Ribes nigrum throughout the state - application of adequate sanitation measures in environs of all important pine growing nurseries - application of control measures in areas to be planted to white pine.

Relation of Total Cost of All Control Activities to Total Commercial Value of White Pine

Average of White Pine	Commercial Value of White Pine	Total Cost of All Control Activities, 1918-1934, inclusive	Total Commercial Value of White Pine Represented by Activities
1,715.357	\$27,127,222.	\$1,462,271.30	3.7

Comparison Between Cost Per Acre Based on Ribes Eradication Costs Only and on Cost of All Control Activities, 1918-1934, inclusive

Ribes	Based on Ribes Eradication Costs Only		Based on Total Expenditures	
	1918-1934	Average Per Year	1918-1934	Average Per Year
Per Acre	Worked	Protected	Worked	Protected
21.8	.720	1.60	.404	.094
			1.07	3.17
			.006	.186

Future Work

Complete initial eradication work on state and individually owned lands - 714,812 acres (basis: estimates made during 1934 by agents of acreage still needing initial eradication work in each town, including both pine areas and protection strips. Outside the agent districts the areas in need of initial eradication were estimated to be the acreage of the pure and mixed (50-75 per cent) pine areas an additional 50 per cent for protection zones). Re-examination of 266,897 acres initially worked during 1918-1934 that have not been re-eradicated of Ribes - estimate 50 per cent, or 133,448 acres, will require intensive re-eradication. Elimination of Ribes areas throughout the state - application of adequate sanitation measures in environs of all important pine growing nurseries - application of control measures in areas to be planted to white pine.

BLISTER RUST CONTROL IN NEW JERSEY

Acreage and Commercial Value of White Pine

From a forestry view point, there is very little white pine in the state; however, it has been planted extensively as an ornamental, especially in the Red Bank and Morristown sections. Native white pine is found chiefly in the northern part of the state, especially in the townships of Montague, Sandyston, and Wallpack in Sussex County, and New Milford in Passaic County. It occurs principally in scattered small lots along the river valleys.

	<u>Acreage</u>	<u>Value</u>
Pure white pine (80-100% pine) - (Over 6" DBH.....)	600	\$67,200.
(Under 6" DBH.....)	1500	37,500.
Mixed white pine - (21-29% pine in mixture.....)	1500	42,000.
(30-79% " " ")	2000	112,000.
Other types with scattered white pine stocking and restocking*.....	2000	(14,000.-Pine stocking (1,825.-Restocking
White pine restocking in pure merchantable and mixed white pine types.....	1175**	1,175.
Totals.....	7600	275,700.

*Excludes those "other types" which have 1-20% pine (above restocking size), but do not contain white pine restocking.

**This acreage not included in total as it is already listed under pure and mixed white pine types.

Basis for estimating value of white pine: merchantable stumpage figured at normal value of \$7 per M - average volume per acre, pure merchantable white pine = 16 M bd.ft.; mixed white pine, 21-29% = 4 M bd.ft.; mixed white pine, 30-79% = 8 M bd.ft.; and white pine, above restocking size in other types = 1 M bd.ft. Pure stands of white pine under 6" DBH given normal value of \$25 per acre. Estimated normal per acre value of white pine restocking; degree of restocking, light = \$1.

Stumpage prices under present abnormal conditions range from \$2 to \$6 per thousand board feet. This is, however, a temporary situation which should return to normal when economic conditions improve.

Ribes Conditions

Wild Ribes are more or less generally distributed in the northern part of the state, where Ribes rotundifolium, vulgare, cynosbati, americanum have been found. In many areas the Ribes are so few and localized that they can be effectively eradicated by scouts at a low per acre cost. Only 22 of 1100 private nurseries contain 50 or more trees of this

Pine and Ribes Infection Conditions

First found in New Jersey in 1911 on pines at the Newark watershed near Charlotteburg. Since then, infection has been found somewhere in the state every year with exceptions of 1912, 1914, 1915, 1923, and 1929. Scouting in 1927 showed the disease more generally prevalent than ever before, being found on Ribes in 21 localities in seven counties. No pine infection was reported from 1918 to 1934 when scouting by federal agents resulted in the

Accession and Control Value of Wildlife Films

From a forestry view point, there is very little white pine in the state; however, it has been utilized extensively as an ornamental, especially in the Red Bank and Harborton sections. Native white pines are found chiefly in the northern part of the state; especially in the townships of Montana, Sanguin, and Wallace in Beaver County, and New Bedford in Lincoln County. It occurs principally in scattered small lots along the river valleys.

[illegible]

Wetland types "other types" which have 1-20% pine (above wetland area).

but do not contain white pine resin.

...the same as the one in the ...

SECRET

of white pine seedlings; degree of roasting, light = 11.

known as "bored test". This is, however, a temporary situation which should return to normal when economic conditions improve.

White Gold: 100%

low per acre cost.

The flies are so few and localized that they can be effectively eradicated by scouts at a
where higher concentrations, villages, synagogues, cemeteries have been found. In many areas
This flies are more or less generally distributed in the northern part of the state

Time and Fiber Interaction Conditions

Infestation was reported from 1918 to 1920 when scouting by Federal agents resulted in the release of over 1000, being found on Albes in 21 localities in seven counties. No pine at 1919, 1921, 1922, and 1923. Scouting in 1927 showed the disease more generally than before. Infestation has been found somewhere in the state every year with exceptions. It was found in New Jersey in 1911 on pines at the Newark watershed near Charlotte.

location of infection on native pines in Montague, Vernon and West Milford. In the latter township heavy infection was found to extend throughout an area comprising 15 acres of white pine, ranging from 5-30 years old. At least 30 percent of the trees on the tract were diseased with cankers ranging from 1925 to 1932 origin.

Policy

Prior to 1929, all blister rust activities in this state were conducted by a few temporary men, employed during the summer months, on scout work to determine pine, Ribes and infection conditions. Since August, 1929, a permanent agent has been employed on a part time basis. Due to the limited amount of native white pine, his activities are confined chiefly to nursery sanitation, black currant eradication, inspection and protection of plantations, scouting, and direction of control work where needed. Regular Ribes eradication work was conducted for the first time in the state during 1934 in the townships of Montague, Sandyston, and Walpack. One N.R.A. scout and a crew of five laborers from one CCC Camp were used on project.

Informational and Service Activities

No complete records are available of such activities performed by the part time agent.

Results of Ribes Eradication Work-(All initial work during 1934.) (Excluding nursery sanitation)

Program	Acreage Worked	Ribes Pulled		Cost			Per Acre		
		Wild	Cult.	State	E.C.W.	P.W.A.	Total	Cost	Ribes
E.C.W.	381	19795	304	-	346.50	-	346.50	.909	52.0
P.W.A.	12,314	2527	859	45.23	-	505.20	550.43	.045	0.2
Total	12,695	22322	1163	45.23	346.50	505.20	896.93	.071	1.8

The cost of the Ribes eradication work includes all expenditures for laborers and the scout employed in locating and pulling Ribes - cost of crew transportation and miscellaneous expenses for trail paper, picks, etc. In the case of the E.C.W. personnel, the cost of their total time on Ribes eradication work was figured at the rate of \$1.40 per eight hour day.

Status of Regular Ribes Eradication Work (December, 1934)

Program	Acreage of Control Area	Acreage of Control Area Worked	Percentage of Control Area Worked	Acreage Still in need of Protection	Acreage of White Pine	
					Total in Control Area	Est. Acreage Protected
Initial	33,395	12,695	38.0	20,700	5600	2712

No regular control work performed in state prior to 1934, consequently no reeradication work now necessary.

Nursery Sanitation

In addition to the state nursery at Washington Crossing, there are 86 commercial nurseries growing white pine. Only 28 of these private nurseries contain 500 or more trees of this species. Three of these private nurseries applied for pine shipping permits under Federal Quarantine 63 during 1933, but after a preliminary survey revealed sizeable plantings of cultivated Ribes within the 1500 protective zones, the owners decided not to take further action.

The initial eradication of Ribes in the one mile sanitation zone around the state nursery was completed in 1932, and the entire area was re-examined for Ribes in 1933. During 1934 a portion of the control area around the state nursery was again reworked for Ribes.

location of infection on native pines in Montague, Vernon and West Milford. In the latter township heavy infection was found to extend throughout an area comprising 15 acres of native pines, ranging from 5-30 years old. At least 10 percent of the trees on the tract were killed with cankers ranging from 1925 to 1932 origin.

Policy

Prior to 1933, all blight control activities in this state were conducted by a few forestry men, employed during the summer months, on scout work to determine pine, Ribes and infection conditions. Since August, 1933, a permanent agent has been employed on a part time basis. Due to the limited amount of native white pine, his activities are confined chiefly to nursery sanitation, blight control eradication, inspection and protection of plantations, accounting, and detection of control work where needed. Regular Ribes eradication work was conducted for the first time in the state during 1934 in the township of Montague, Sandyston, and Milford. One N.E.A. agent and a crew of five laborers from one CCC Camp were used on project.

Informational and Service Activities

No complete records are available of such activities performed by the past year.

Results of Ribes Eradication Work - (All initial work during 1934.)
(Including nursery sanitation)

Program	Acres Worked	Ribes Killed	Cost	State	F.W.	F.T.A.	Total	Cost	Per Acre
N.E.W.	381	1070	146.50	-	146.50	-	146.50	146.50	38.0
F.T.A.	12,314	2827	-	27.27	-	208.20	208.20	208.20	0.2
Total	12,695	3897	146.50	27.27	146.50	208.20	354.70	354.70	1.8

The cost of the Ribes eradication work includes all expenditures for laborers and the agent employed in locating and killing Ribes - cost of crew transportation and miscellaneous expenses for trail paper, glass, etc. In the case of the N.E.W. personnel, the cost of their total time on Ribes eradication work was figured at the rate of \$1.40 per eight hour day.

Status of Regular Ribes Eradication Work (December, 1934)

Program	Control Area	Area Worked	Percentage of Control Area	Acres Still in need of Protection	Total in Control Area	Per Acre
Initial	11,795	12,695	38.0	20,700	2600	27.2

No regular control work performed in state prior to 1934, consequently no eradication work now necessary.

Nursery Sanitation

In addition to the state nursery at Washington Grove, there are 85 commercial nurseries growing white pines. Only 28 of these private nurseries contain 500 or more trees of this species. Three of these private nurseries applied for pine shipping permits under Federal Quarantine 63 during 1933, but after a preliminary survey revealed sizable plantings of cultivated Ribes within the 1500 protective zones, the owners decided not to ship - further action.

The initial eradication of Ribes in the one mile sanitation zone around the state nursery was completed in 1932, and the entire area was re-examined for Ribes in 1933. During 1934 a portion of the control area around the state nursery was again worked for Ribes.

Results of Ribes Eradication in Connection With Nursery Sanitation Project
(1932 - 1934, Inclusive)

Type of Work	Acreage Worked	Ribes Pulled		Total Cost	Per Acre	
		Wild	Cult		Cost	Ribes
Initial eradication	1000	462	49	22.20	.022	0.5
Re-Eradication	1010	569	-	53.97	.053	0.6
Total	2010	1031	49	76.17	.038	0.5

These data are not included in the regular Ribes eradication summaries.

Black Currant Eradication

Survey of black currants made during 1928 in Morris County, also in parts of Monmouth and Sussex; 102 plantations of black currants were located in Morris County, 19 in Monmouth, 10 in Sussex, 1 in Warren, and 1 in Passaic Counties. In the area scouted, black currants were found in only one nursery. There is an unwritten agreement between the New Jersey nurseries not to sell these bushes. No systematic eradication of *Ribes nigrum* in the state has been attempted to date, but the owners of such Ribes have in a good many cases destroyed their bushes.

Plantations

About 10,000 acres have been planted; however, the white pine survey shows only an estimated total of 194,840 planted white pines exclusive of 21,388 reported in nurseries. The largest white pine plantings are located in Gloucester, Morris Cumberland, Ocean and Somerset Counties. Smaller white pine plantings are found in the Counties of Monmouth, Warren, Burlington, and Sussex. During 1929, an inspection was made of the sites and environs of the white pine plantings, made from stock distributed during that year by the State Department of Conservation and Development. These locations were examined for wild and cultivated Ribes, and when Ribes and older pines were found nearby, these were inspected for infection. Owners in each case, were advised regarding the disease and control methods. The plantations varied from 500 to 10,000 seedlings; and on 30 sites examined, 323 cultivated currants and gooseberries (mostly red currants) were located - none of these bushes were infected. Card and map records of this work were kept for future reference. Blister rust control literature is now sent to each purchaser of white pine planting stock from the state nursery.

Ribes Compensation

No compensation has been paid for the 1212 cultivated Ribes destroyed in the state.

Surveys and Investigations

Prior to 1929, general scouting during summer months by one or two cooperative scouts to locate pine, Ribes and infection - state-wide survey of forest types, by towns, made by Hirt during 1927. The details of the black currant survey conducted during 1928 are given under "Black Currant Eradication." Survey of pine and Ribes growing nurseries made in 1931.

Results of Ribes eradication in domesticated plantations
(1972 - 1974, inclusive)

Type of Work	Acres Worked	Ribes Killed		Total Cost	Per Acre Cost
		W114	Cost		
Initial eradication	1000	100	45	22.70	0.2
Re-eradication	1010	260	-	27.91	0.3
Total	2010	360	45	50.61	0.3

These data are not included in the Ribes eradication summary.

Black Current Eradication

Survey of black current plants made during 1972 in North County, also in parts of Monmouth and Sussex; 102 plantations of black current were located in North County, 19 in Monmouth, in Sussex, 1 in Warren, and 1 in Passaic Counties. In the area located, black current was found in only one nursery. There is an unverified report between the New Jersey nurseries and to sell these bushes. No systematic eradication of Ribes plants in the state has been attempted to date, but the owners of such Ribes have in a good many cases destroyed their plants.

Plantations

About 15,000 acres have been planted; however, the white pine survey shows only an estimated total of 12,000 planted white pine. The Ribes eradication in nurseries in the State is reported as follows: 1972, 1000 acres; 1973, 1010 acres; 1974, 1010 acres. White pine plantations are located in Gloucester, Morris, Cumberland, Ocean and Somerset Counties. Earlier white pine plantations are found in the Counties of Monmouth, Warren, Burlington, and Sussex. During 1972, an inspection was made of the Ribes and sections of the Ribes plantations, made from stock distributed during that year by the State Department of Conservation and Development. These locations were examined for wild and cultivated Ribes. When Ribes and other plants were found nearby, these were indicated for eradication. Owners of each case, were advised regarding the Ribes and control methods. The plantations visited on 500 to 10,000 seedlings; and on 10 Ribes examined. 121 cultivated nurseries and 1000 Ribes (mostly red currants) were located - none of these bushes were infected. Card and copy records of this work were kept for future reference. Ribes root control literature is now sent to each purchaser of white pine planting stock from the state nursery.

Ribes Eradication

No eradication has been paid for the 1512 cultivated Ribes destroyed in the state.

Survey and Investigations

From 1972 to 1974, general scouting during summer months by one or two cooperative scouts in North County, Ribes and infection - state-wide survey of forest types, by towns, made by Wilt during 1972. The details of the black current survey conducted during 1972 are given under Black Current Eradication. Survey of pine and Ribes growing nurseries made in 1971.

Total Cost of All Blister Rust Control Work, 1925-1934, Inclusive

State B.R. Approp.	Other State Approp.	B.P.I.	E.C.W.	P.W.A.	Total
\$10,864.41	36.80	6271.28	346.50	1967.75	\$19,486.74

The total expenditures for all control work include cost of administration, supervision, blister rust control agent activities, Ribes eradication, nursery sanitation, field investigations, and miscellaneous.

Future Work

Complete initial eradication work on 20,700 acres, basis of 1934 estimates - application and maintenance of adequate nursery sanitation measures - complete survey of Ribes nigrum and eradication of such bushes - eradication of all Ribes within at least 900 feet of pine plantations and ornamental pine of value - additional scouting in northern section of state to determine in more detail pine, Ribes and infection conditions - adequate records and maps to show location of pine plantations, Ribes nigrum, native pine, infection, etc. - general informational work to keep public advised regarding the disease and its control.

Continued work on "white types" which are...

...but in some cases the white pine...

While working on the white pine...

and others.

Early this spring the survey of white pine...

...has been completed.

White of 17 pine is - average about 100 feet...

...and 10 to 15 feet...

White pine plantations, 1934, 1935, 1936, 1937, 1938, 1939, 1940, 1941, 1942, 1943, 1944, 1945, 1946, 1947, 1948, 1949, 1950, 1951, 1952, 1953, 1954, 1955, 1956, 1957, 1958, 1959, 1960, 1961, 1962, 1963, 1964, 1965, 1966, 1967, 1968, 1969, 1970, 1971, 1972, 1973, 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 2681, 2682, 2683, 2684, 2685, 2686, 2687, 2688, 2689, 2690, 2691, 2692, 2693, 2694, 2695, 2696, 2697, 2698, 2699, 2700, 2701, 2702, 2703, 2704, 2705, 2706, 2707, 2708, 2709, 2710, 2711, 2712, 2713, 2714, 2715, 2716, 2717, 2718, 2719, 2720, 2721, 2722, 2723, 2724, 2725, 2726, 2727, 2728, 2729, 2730, 2731, 2732, 2733, 2734, 2735, 2736, 2737, 2738, 2739, 2740, 2741, 2742, 2743, 2744, 2745, 2746, 2747, 2748, 2749, 2750, 2751, 2752, 2753, 2754, 2755, 2756, 2757, 2758, 2759, 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2926, 2927, 2928, 2929, 2930, 2931, 2932, 2933, 2934, 2935, 2936, 2937, 2938, 2939, 2940, 2941, 2942, 2943, 2944, 2945, 2946, 2947, 2948, 2949, 2950, 2951, 2952, 2953, 2954, 2955, 2956, 2957, 2958, 2959, 2960, 2961, 2962, 2963, 2964, 2965, 2966, 2967, 2968, 2969, 2970, 2971, 2972, 2973, 2974, 2975, 2976, 2977, 2978, 2979, 2980, 2981, 2982, 2983, 2984, 2985, 2986, 2987, 2988, 2989, 2990, 2991, 2992, 2993, 2994, 2995, 2996, 2997, 2998, 2999, 3000, 3001, 3002, 3003, 3004, 3005, 3006, 3007, 3008, 3009, 3010, 3011, 3012, 3013, 3014, 3015, 3016, 3017, 3018, 3019, 3020, 3021, 3022, 3023, 3024, 3025, 3026, 3027, 3028, 3029, 3030, 3031, 3032, 3033, 3034, 3035, 3036, 3037, 3038, 3039, 3040, 3041, 3042, 3043, 3044, 3045, 3046, 3047, 3048, 3049, 3050, 3051, 3052, 3053, 3054, 3055, 3056, 3057, 3058, 3059, 3060, 3061, 3062, 3063, 3064, 3065, 3066, 3067, 3068, 3069, 3070, 3071, 3072, 3073, 3074, 3075, 3076, 3077, 3078, 3079, 3080, 3081, 3082, 3083, 3084, 3085, 3086, 3087, 3088, 3089, 3090, 3091, 3092, 3093, 3094, 3095, 3096, 3097, 3098, 3099, 3100, 3101, 3102, 3103, 3104, 3105, 3106, 3107, 3108, 3109, 3110, 3111, 3112, 3113, 3114, 3115, 3116, 3117, 3118, 3119, 3120, 3121, 3122, 3123, 3124, 3125, 3126, 3127, 3128, 3129, 3130, 3131, 3132, 3133, 3134, 3135, 3136, 3137, 3138, 3139, 3140, 3141, 3142, 3143, 3144, 3145, 3146, 3147, 3148, 3149, 3150, 3151, 3152, 3153, 3154, 3155, 3156, 3157, 3158, 3159, 3160, 3161, 3162, 3163, 3164, 3165, 3166, 3167, 3168, 3169, 3170, 3171, 3172, 3173, 3174, 3175, 3176, 3177, 3178, 3179, 3180, 3181, 3182, 3183, 3184, 3185, 3186, 3187, 3188, 3189, 3190, 3191, 3192, 3193, 3194, 3195, 3196, 3197, 3198, 3199, 3200, 3201, 3202, 3203, 3204, 3205, 3206, 3207, 3208, 3209, 3210, 3211, 3212, 3213, 3214, 3215, 3216, 3217, 3218, 3219, 3220, 3221, 3222, 3223, 3224, 3225, 3226, 3227, 3228, 3229, 3230, 3231, 3232, 3233, 3234, 3235, 3236, 3237, 3238, 3239, 3240, 3241, 3242, 3243, 3244, 3245, 3246, 3247, 3248, 3249, 3250, 3251, 3252, 3253, 3254, 3255, 3256, 3257, 3258, 3259, 3260, 3261, 3262, 3263, 3264, 3265, 3266, 3267, 3268, 3269, 3270, 3271, 3272, 3273, 3274, 3275, 3276, 3277, 3278, 3279, 3280, 3281, 3282, 3283, 3284, 3285, 3286, 3287, 3288, 3289, 3290, 3291, 3292, 3293, 3294, 3295, 3296, 3297, 3298, 3299, 3300, 3301, 3302, 3303, 3304, 3305, 3306, 3307, 3308, 3309, 3310, 3311, 3312, 3313, 3314, 3315, 3316, 3317, 3318, 3319, 3320, 3321, 3322, 3323, 3324, 3325, 3326, 3327, 3328, 3329, 3330, 3331, 3332, 3333, 3334, 3335, 3336, 3337, 3338, 3339, 3340, 3341, 3342, 3343, 3344, 3345, 3346, 3347, 3348, 3349, 3350, 3351, 3352, 3353, 3354, 3355, 3356, 3357, 3358, 3359, 3360, 3361, 3362, 3363, 3364, 3365, 3366, 3367, 3368, 3369, 3370, 3371, 3372, 3373, 3374, 3375, 3376, 3377, 3378, 3379, 3380, 3381, 3382, 3383, 3384, 3385, 3386, 3387, 3388, 3389, 3390, 3391, 3392, 3393, 3394, 3395, 3396, 3397, 3398, 3399, 3400, 3401, 3402, 3403, 3404, 3405, 3406, 3407, 3408, 3409, 3410, 3411, 3412, 3413, 3414, 3415, 3416, 3417, 3418, 3419, 3420, 3421, 3422, 3423, 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3590, 3591, 3592, 3593, 3594, 3595, 3596, 3597, 3598, 3599, 3600, 3601, 3602, 3603, 3604, 3605, 3606, 3607, 3608, 3609, 3610, 3611, 3612, 3613, 3614, 3615, 3616, 3617, 3618, 3619, 3620, 3621, 3622, 3623, 3624, 3625, 3626, 3627, 3628, 3629, 3630, 3631, 3632, 3633, 3634, 3635, 3636, 3637, 3638, 3639, 3640, 3641, 3642, 3643, 3644, 3645, 3646, 3647, 3648, 3649, 3650, 3651, 3652, 3653, 3654, 3655, 3656, 3657, 3658, 3659, 3660, 3661, 3662, 3663, 3664, 3665, 3666, 3667, 3668, 3669, 3670, 3671, 3672, 3673, 3674, 3675, 3676, 3677, 3678, 3679, 3680, 3681, 3682, 3683, 3684, 3685, 3686, 3687, 3688, 3689, 3690, 3691, 3692, 3693, 3694, 3695, 3696, 3697, 3698, 3699, 3700, 3701, 3702, 3703, 3704, 3705, 3706, 3707, 3708, 3709, 3710, 3711, 3712, 3713, 3714, 3715, 3716, 3717, 3718, 3719, 3720, 3721, 3722, 3723, 3724, 3725, 3726, 3727, 3728, 3729, 3730, 3731, 3732, 3733, 3734, 3735, 3736, 3737, 3738, 3739, 3740, 3741, 3742, 3743, 3744, 3745, 3746, 3747, 3748, 3749, 3750, 3751, 3752, 3753, 3754, 3755, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3764, 3765, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3779, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 3787, 3788, 3789, 3790, 3791, 3792, 3793, 3794, 3795, 3796, 3797, 3798, 3799, 3800, 3801, 3802, 3803, 3804, 3805, 3806, 3807, 3808, 3809, 3810, 3811, 3812, 3813, 3814, 3815, 3816, 3817, 3818, 3819, 3820, 3821, 3822, 3823, 3824, 3825, 3826, 3827, 3828, 3829, 3830, 3831, 3832, 3833, 3834, 3835, 3836, 3837, 3838, 3839, 3840, 3

Total Cost of All Blister Rust Control Work, 1925-1974, Inclusive

State E.R. Approp.	Other State Approp.	F.F.I.	E.D.W.	F.W.A.	Total
\$10,334.11	76.80	\$271.28	446.50	1967.12	\$19,488.71

The total expenditures for all control work include cost of administration, supervision, blister rust control agent activities, Ribes eradication, nursery sanitation, field investigations, and miscellaneous.

Future Work

Complete initial eradication work on 25,700 acres, basis of 1974 estimates - application and maintenance of complete nursery sanitation measures - complete survey of Ribes nigrum and eradication of such bushes - eradication of all Ribes within at least 900 feet of pine plantations and ornamental pine of value - additional scouting in northern section of state to determine in more detail pine, Ribes and infection conditions - adequate records and maps to show location of pine plantations, Ribes nigrum, native pine, infection, etc. - general informational work to keep public advised regarding the disease and its control.

BLISTER RUST CONTROL IN PENNSYLVANIA

Acreage and Commercial Value of White Pine

	<u>Acreage</u>	<u>Value</u>
Pure white pine (80-100%) - (Over 6" DBH.....)	51,854	\$5,807,648.
(Under 6" DBH.....)	40,043	1,001,075.
Mixed white pine (21-29% pine in mixture.....)	98,023	2,744,644.
(30-79% pine in mixture.....)	28,078	1,572,368.
Other types with scattered white pine stocking and restocking*.....	157,630	(1,103,410. ^{Pine} stocking (157,630. Restocking)
White pine restocking in pure merchantable and mixed white pine types.....	<u>68,662**</u>	<u>68,662.</u>
Totals.....	375,628	\$12,455,437.

*Excludes those "other types" which have 1-20% pine (above restocking size), but do not contain white pine restocking.

**This acreage not included in total, as it is already listed under pure and mixed.

Basis for estimating value of white pine: merchantable stumpage figured at normal value of \$7 per M - average volume per acre, pure merchantable white pine = 16 M bd. ft.; mixed white pine, 21-29% = 4 M bd. ft.; mixed white pine, 30-79% = 8 M bd. ft.; and white pine, above restocking size in other types = 1 M bd. ft. Pure stands of white pine under 6" DBH given normal value of \$25 per acre. Estimated normal per acre value of white pine restocking: degree of restocking, light = \$1, medium = \$2, heavy = \$3.

Stumpage prices under present abnormal conditions range from \$2 to \$6 per thousand board feet. This is, however, a temporary situation which should return to normal when economic conditions improve.

Ribes Conditions

Wild Ribes are generally abundant throughout the entire state, the principal species being Ribes rotundifolium which occur in heavy concentrations in many locations.

Pine Infection Conditions

The disease was discovered on white pine in Pennsylvania in April, 1905, by Samuel N. Baxter at a nursery in Dresher near Philadelphia. This is the earliest known record of blister rust being found in this country. It was not until 1909 that another infection was reported in the state - one infected white pine (imported from Europe) was found at Lewiston Junction by J. F. Collins. Subsequent discoveries of blister rust were reported in various counties in Pennsylvania from 1910-1926, chiefly on planting stock imported from European countries. Intensive scouting since 1926 has revealed that the rust on pine and Ribes is quite generally distributed, and at the present time can probably be found wherever pine and Ribes occur in close association.

Pine infection studies made in unprotected areas during the spring of 1935 show that the disease is increasing at an alarming rate. Ten plots comprising 9½ acres, were laid out in the Counties of Clarion and Potter. These plots contained 3984 white pines of which 2618 or 66 per cent were infected with 10,605 cankers. The intensification of the

NOTES: 1. The above information was obtained from the files of the FBI, New York Office, dated 1/10/68.

Totals.....		375.658	\$12,457.47
Mixed white pine types.....		68.665*	68.665
White pine restocking in pure merchantable and and restocking*.....		127.670	(127.670 Restocking 11.103,410. Restocking Fine
Other types with scattered white pine stocking			
Mixed white pine	30-29% pine in mixture.....	28.078	1.275.368
	(21-29% pine in mixture.....	98.023	2.744.644
Pure white pine (60-100%) -	(Under 6" DBH.....	40.043	1.001.075
	(Over 6" DBH.....	51.484	12,807.846
Totals.....		375.658	\$12,457.47

*This average not included in total, as it is already listed under pure and mixed.

restocking: degree of restocking, light = 21, medium = 22, heavy = 23.
 6" DBH (over normal) value of \$25 per acre. Estimated normal per acre value of white pine
 pine above restocking also in other types = 1 M bd. ft. Pure stands of white pine under
 mixed white pine, 21-25% = 4 M bd. ft.; mixed white pine, 50-75% = 8 M bd. ft.; and white
 value of \$7 per M = average volume per acre, pure merchantable white pine = 16 M bd. ft.;
 Basis for estimating value of white pine: merchantable stumpage figured at normal

economic conditions improve. This is, however, a temporary situation which should return to normal when foreign prices under present abnormal conditions range from 25 to 50 per thousand.

Below *Ribes rotundifolium* which occur in heavy concentrations in many locations. Wild *Ribes* are generally abundant throughout the entire state, the principal species

pine and Hides occur in close association. Hides is quite generally distributed, and at the present time can probably be found wherever European countries. Intensive scouting since 1925 has revealed that the rust on pine and its various associates in Pennsylvania from 1910-1925, chiefly on planting stock imported from Western Junction by J. W. Collins. Subsequent discoveries of blister rust were reported as reported in the state - one infected white pine (imported from Europe) was found at of blister rust being found in this country. It was not until 1909 that another infection Samuel M. Baxter at a nursery in Greaser near Philadelphia. This is the earliest known case. The disease was discovered on white pine in Pennsylvania in April, 1905, by

Five infection studies made in unprotected areas during the spring of 1955 show that the disease is increasing at an alarming rate. Ten plots comprising 21 acres, were laid out in the Counties of Clarton and Potter. These plots contained 7984 white pine of which 2618 or 66 per cent were infected with 10,605 cankers. The infestation of the

disease is indicated by the fact that 62 per cent of the cankers were 1930 or 1931 origin. Fifty per cent of the infected trees have stem cankers, and over 14 per cent of the diseased pines have already been killed.

Policy

Prior to 1929, the work was limited chiefly to scouting for pine, Ribes and infection during the summer months by one or two temporary men employed cooperatively by the state and Federal Departments of Agriculture. The first demonstrations of control methods were held during 1928 by the Department of Forests and Waters in cooperation with the Division of Blister Rust Control. In 1929, the work was organized on the following cooperative basis: The State Department of Agriculture agreed to assume administrative direction of cooperative employees, conduct such control activities as agreed upon each year by the cooperative parties, and to enforce state laws under which blister rust control is conducted. The Department of Forests and Waters agreed to undertake the application of local control measures on state owned forests; cooperate with counties, towns, associations, and individuals in the application of local control measures, and provide supervision and checking of such work. In 1930, the Department of Forests and Waters took over the responsibility, through its state blister rust leader and District foresters, of directing all control activities in the state. Most of the Ribes eradication work during 1929 and all that done in 1930 was performed on state lands. Such state work was continued during 1931 and 1932. In addition during these two years, a few temporary agents were employed during the summer months to conduct control work in cooperation with individual owners. These agents did the necessary scouting for Ribes and assisted owners by supervising the eradication of concentrations of such bushes on their properties. During 1933 and 1934, the regular cooperative work was necessarily curtailed due to the activities conducted under the E.C.W., and P.W.A., Programs. All work conducted under these emergency programs was supervised by the state leader, one federal and two state district blister rust control agents.

Information and Service Activities of Blister Rust Control Agents

No records are available of such activities prior to 1932. An incomplete summary of such activities since 1932 shows 3,479 publications were distributed, 76 posters and signs placed, blister rust news items were published in 26 newspapers, and talks were given at three meetings attended by 103 persons.

A total of 414 individuals were interviewed for the first time, and 364 follow-up calls were made.

Individual Cooperation in Blister Rust Control Work 1929-1934, Inclusive

Individual cooperation in control work was secured in all years except 1930, during the period of 1929, to 1934, inclusive; 234 owners expending \$1553.63 for Ribes eradication work on their properties. The amount spent by individuals includes \$186.80 for nursery sanitation work.

Results of Ribes Eradication Work, 1929-1934, Inclusive (Initial and Re-eradication)

Program	Acreage Worked	Ribes Pulled		Cost				Per Acre	
		Wild	Cult.	State	Indiv.	Govt.	Total	Cost	Ribes
Regular	73970	3,222,043	5502	34212.36	1366.83	2082.62	37,661.81	.509	43.6
E.C.W.	81245	5,834,399	459	360.00	-	114977.17	115337.17	1.42	71.8
P.W.A.	16062	2,350,496	2164	-	-	30033.42	30033.42	1.87	146.3
Total	171277	11,406,938	8125	34572.36	1366.83	147093.21	183032.40	1.07	66.6

Control work was conducted from 62 CCC camps during 1933 and from 56 camps (including two on Allegheny National Forest) in 1934.

Policy

Prior to 1929, the work was limited chiefly to scouting for pine, Ribes and infection during the summer months by one or two temporary men employed cooperatively by the state and Federal Departments of Agriculture. The first demonstration of control methods were held during 1928 by the Department of Forests and Waters in cooperation with the Division of Blister Rust Control. In 1929, the work was organized on the following cooperative basis: State Department of Agriculture agreed to assume administrative direction of cooperative work, conduct such control activities as agreed upon each year by the cooperative parties, and to enforce state laws under which blister rust control is conducted. The Department of Forests and Waters agreed to undertake the application of local control measures on owned forests; cooperate with counties, towns, associations, and individuals in the eradication of local control measures, and provide supervision and checking of such work. The Department of Forests and Waters took over the responsibility, through its state or trust leader and District Foresters, of directing all control activities in the state. Of the Ribes eradication work during 1929 and all that done in 1930 was performed on state property. Such state work was continued during 1931 and 1932. In addition during these two years, a few temporary agents were employed during the summer months to conduct control work in cooperation with individual owners. These agents did the necessary scouting for Ribes and Ribes owners by supervising the eradication of concentrations of such bushes on their property. During 1933 and 1934, the regular cooperative work was necessarily curtailed due to activities conducted under the E.O., and P.W.A., Programs. All work conducted under emergency programs was supervised by the state leader, one federal and two state district blister rust control agents.

Information and Service Activities of Blister Rust Control Agents

No records are available of such activities prior to 1932. An incomplete summary of activities since 1932 shows 8,479 publications were distributed, 76 posters and signs, 6 blister rust news items were published in 26 newspapers, and talks were given at meetings attended by 103 persons. A total of 414 individuals were interviewed for the first time, and 364 followup calls were made.

Individual Cooperation in Blister Rust Control Work 1932-1934, Inclusive

Individual cooperation in control work was secured in all years except 1930, during period of 1930 to 1934, inclusive; 234 owners expending \$152.63 for Ribes eradication on their properties. The amount spent by individuals includes \$186.80 for nursery work.

Results of Ribes Eradication Work, 1932-1934, Inclusive (Initial and Re-eradication)

System	Average Worked	Ribes Pulled		Cost		Per Acre
		Wild	Cult.	State	Indiv.	
Clear	73970	3,222,043	3502	34212.36	1366.88	37,661.61
C.P.	81248	3,524,329	459	360.00	-	1.42
P.W.A.	16062	3,380,498	214	-	30023.42	1.87
Total	171280	11,406,938	512	34572.36	1366.88	183032.40

Control work was conducted from 62 CCC camps during 1933 and from 56 camps (including two on Allegheny National Forest) in 1934.

The above summary excludes nursery sanitation work during the period 1930-1932, inclusive, when a separate record was kept of such activities.

The cost of the Ribes eradication project includes owners' labor (valued at 40 cents per hour) and all expenditures for wages of laborers, scouts and foremen employed in locating and pulling Ribes - cost of crew transportation and miscellaneous expenses for trail paper, picks, etc. In the case of E.C.W. personnel, the cost of their total time on Ribes eradication work was figured at the rate of \$1.35 per eight hour day in 1933 and \$1.40 in 1934.

A small amount of control work was done prior to 1929 in connection with the protection of three state nurseries. This project was begun in 1924 at the Clearfield nursery, and in 1926 and 1928 this area was reworked. In 1927, the Greenwood and Mount Alto nurseries were initially protected. During 1928, three small demonstrations of control work were given by Federal men for the benefit of members of the State Department of Forests and Waters. Acreage, Ribes, and cost data are not available for the work prior to 1929.

Results of First Re-eradication of Ribes, 1931-1934

Program	Acreage Re-Worked	Ribes Pulled		Total Cost	Per Acre	
		Wild	Cult.		Cost	Ribes
Regular	10,014	390,389	25	7,959.58	.795	39.0
E.C.W.	45,613	1,650,501	95	63,922.53	1.40	36.2
F.A.	1,235	76,640	-	3,179.41	2.57	62.1
Total	56,862	2,117,530	120	75,061.52	1.32	37.2

No direct comparison is practicable between the per acre cost of the re-eradication work and the corresponding cost of all Ribes eradication since there is a variation in the acreage involved and in the sites examined. Most of the re-eradication work has been in areas where crew work was required.

Results of Ribes Eradication Work on Allegheny National Forest, 1929-1934, Inclusive (These data are included in preceding Ribes eradication summaries)

Program	Type of Erad.	Acreage Worked	Ribes Pulled		Cost				Per Acre	
			Wild	Cult.	B.F.I.	Forest Service	E.C.W.	Total	Cost	Ribes
Regular	Initial	891	129,019	8	136.56	507.71	-	644.27	.723	144.8
	Re-Erad.	627	19,993	-	71.29	272.06	-	343.35	.548	31.9
	Total	1518	149,012	8	207.85	779.77	-	987.62	.651	98.2
E.C.W.	Initial	1358	82,810	-	-	-	801.92	801.92	.591	61.0
Total	Initial	2249	211,829	8	136.56	507.71	801.92	1446.19	.643	94.2
	Re-Erad.	627	19,993	-	71.29	272.06	-	343.35	.547	31.9
	Total	2876	231,822	8	207.85	779.77	801.92	1789.54	.622	80.6

Status of Regular Ribes Eradication Work - December, 1934

Program	Acreage of Control Area	Acreage of Control Area Worked	Percentage of Control Area Worked*	Acreage Still in Need of Protection	Acreage of White Pine	
					Total in Control Area	Est. Acreage Protected
Initial	415,951	114,415	27.5	301,536	119,975	32,993
Re-Erad.	5,459	56,862	100.0	0	1,572	16,376

*The percentages are the same for the pine area protected.

The above summary includes summary evaluation work during the period 1970-1972, inclusive, when a separate record was kept of such activities.

The cost of the Ribes eradication project includes salaries, labor (valued at \$0.50 per hour) and all expenses for wages of laborers, scouts and foremen employed in local and pulling Ribes - cost of crew transportation and miscellaneous expenses for trail repair, etc. In the case of E.C.W. personnel, the cost of their total time on Ribes eradication was figured at the rate of \$1.25 per eight hour day in 1971 and \$1.40 in 1972.

A small amount of control work was done prior to 1971 in connection with the Ribes eradication project. This project was begun in 1964 at the Glenfield nursery, and in 1965 and 1966 this area was reworked. In 1967, the Greenwood and Mount Airy nurseries were initially protected. During 1968, three small demonstration of control work were given to Federal men for the benefit of members of the State Department of Forestry and Game, and cost data are not available for the work prior to 1969.

Results of Ribes Eradication of Ribes, 1971-1972

Program	Average Per-Acre	Area Gals.	Total Cost	Cost Per Acre
Regular	10,014	52	1,332.28	.02
E.C.W.	45,012	25	6,325.25	1.40
Total	55,026	77	7,657.53	1.42

No direct comparison is practicable between the per acre cost of the re-eradication work and the corresponding cost of all Ribes eradication since there is a variation in the acreage involved and in the sites examined. Most of the re-eradication work has been in areas where crew work was required.

Results of Ribes Eradication Work on Mississippi National Forest, 1969-1974, Inclusive
(These data are included in preceding Ribes eradication summaries)

Program	Type of Work	Average Per-Acre	Area Gals.		Cost	
			Reg.	E.C.W.	Total	Cost Per Acre
Regular	Initial	801	129,019	3	130.25	130.25
	Re-erad.	627	19,993	-	11.29	11.29
	Total	1428	149,012	3	141.54	141.54
E.C.W.	Initial	1178	22,810	-	-	-
	Re-erad.	627	19,993	-	11.29	11.29
	Total	1805	42,803	-	11.29	11.29

Status of Regular Ribes Eradication Work - December, 1974

Program	Average of Control Area	Percentage of Control Area	Average Still in Need of Protection	Total in Control Area
Initial	114,415	27.5	401,545	112,935
Re-erad.	22,802	100.0	0	18,115

*The percentages are the same for the nine areas protected.

The total control area for the initial work includes the acreage initially cleared of Ribes to date and the estimated acreage still in need of initial protection. The pine acreage in the control area includes all pure pine and mixed 30-79 per cent. The pine acreage protected was figured as being the same proportion of the total area worked as that percentage of pine in the total control area.

The control area for the re-eradication program is based on the total area initially worked up to 1929 inclusive, or on the assumption that all areas initially worked prior to five years ago now need re-examination for Ribes. In addition to the 5459 acres initially cleared of Ribes up to 1929 in Pennsylvania, 51,403 acres have been reworked in areas initially examined since 1929.

Nursery Sanitation

Nursery sanitation has been restricted to four state nurseries located at Clearfield, Greenwood, Mount Alto and Rockview and six commercial pine growing nurseries. Ribes eradication work was first conducted around the Clearfield nursery in 1924. During 1926, a re-examination was made within a 900 foot protection zone. The area was again reworked in 1928 including all white pine plantations in the vicinity of the nursery and for a zone of 900 feet beyond the plantings. In 1927, initial control work was performed around Greenwood and Mount Alto nurseries. Acreage, Ribes, and cost data are not available for the work done prior to 1930. During 1930, all three state nurseries were re-examined of Ribes and protected by 1500 foot sanitation zones. The sanitation zones around Greenwood and Mount Alto State nurseries were again re-examined in 1932, and a similar zone was also partially established around the Rockview Prison nursery. Control has been established and is being maintained around all state nurseries growing white pine.

Results of Ribes Eradication Work in Connection with Nursery Sanitation Project (1930-1934, Inclusive)

Type of Work	Acreage Worked	Ribes Pulled		Total Cost	Per Acre	
		Wild	Cult.		Cost	Ribes
Initial eradication	3661	36,852	146	\$1076.58	.294	10.1
Re-eradication	2870	33,035	0	2128.79	.742	11.6
Total	6531	69,887	146	3205.37	.491	10.7

These data are not included in the regular Ribes eradication summaries.

During 1933, a survey was made to determine the amount of white pine in the various commercial nurseries. The cooperation of six nursery owners has been obtained in establishing sanitation zones. The amount of white pine in the commercial nurseries is very limited and grown entirely for ornamental purposes.

Black Currant Eradication

Cultivated Ribes survey made in Wayne County in 1925 - 279 black currants being found. General scouting and the school campaign show Ribes nigrum planted in most sections of the state, but these bushes are apparently not very numerous. During 1929, a few black currants were eradicated on private lands adjoining state forests which were cleared of wild Ribes. Due to the small number of black currants found near the white pine areas, it may be possible to eradicate such bushes in conjunction with the regular control work and thus eliminate a special black currant project.

White Pine Blister Rust Canker Elimination

E.C.W. crews were used on blister rust canker removal work in state plantations during the period December 1934 to April 1935, inclusive. The following is a summary of the results of this work:

Estimated number pines examined.....	181,694
Number fatally infected pines cut down.....	14,566
Number pines treated for infection.....	39,633
Number cankers removed { branch.....	178,584
Stem	19,189
Total man days worked.....	1,817

Cultivated Ribes Compensation

No compensation has been paid for the 8,271 cultivated Ribes destroyed during the period 1929-1934.

Surveys

During 1927, a cooperative school survey resulted in the rust being found on Ribes in 37 counties in an area extending nearly to the Ohio border on the west and on the south to the Maryland line. In 1928, a somewhat similar infection survey was conducted by utilizing the forest fire warden personnel (4,100 men) of the Department of Forests and Waters. Reports were received from 171, or 4 per cent of the men, scattered over 50 of the 53 counties in the state. A total of 91 wardens submitted 269 Ribes specimens, 14 of which were infected with the rust. During 1929, another Ribes infection survey was carried on by the Department of Forests and Waters through their field personnel numbering about 150 men. As a result blister rust was found in 15 locations in 11 counties, in all of which infection had been previously reported.

A white pine survey of the state was begun in January, 1931. This work is being performed by the blister rust control personnel with the assistance of the field personnel of the Department of Forests and Waters. At the end of 1932, the project had been completed in 25 counties and 9 additional counties partially surveyed. During 1933-1935, pine and control area mapping was carried on under the E.C.W. and P.W.A. Programs during the late fall, winter, and early spring months. Up to May 31, 1935, a total of 89,643 acres were mapped in detail and an additional 135,445 acres were examined but not mapped due to lack of sufficient pine to justify control work. This mapping work required 4462 man days labor.

Investigations

In the spring of 1932, two pine infection study plots were established in Union and Pike Counties. These plots will be re-examined periodically to determine the progress of the disease and the effectiveness of the control work performed. Later in the year, two salvage study plots were established in heavily infected plantations in the same two counties. The purpose of these plots is to determine if it is possible and economically feasible to salvage selected final crop trees by pruning and releasing, and then cutting out any blister rust cankers remaining after these operations.

Effectiveness of Blister Rust Control in Pennsylvania

Field studies were made in Pennsylvania during January and February, 1935 to determine the amount of blister rust infection on white pines in protected and unprotected areas. The studies in unprotected areas show that the amount of disease is increasing at an alarming rate. Ten plots, comprising $9\frac{1}{4}$ acres, were laid out in the Counties of Clarion and Potter. These plots contain 3,984 white pines, of which 2,618, or 66 per cent, were infected with 10,605 cankers. The intensification of the disease is indicated by the fact that 62 per cent of the cankers were of 1930 or 1931 origin. Fifty per cent of the infected trees have trunk cankers and over 14 per cent of the diseased pines have already been killed.

Total man days worked..... 1,817
 Number cankers removed (branch)..... 1,513
 Number cankers removed (stem)..... 1,513
 Number pines treated for infection..... 1,513
 Number totally infected pines cut down..... 1,513
 Estimated number pines examined..... 1,513

Cultivated Pines Compensation

No compensation was paid for the 8,511 cultivated pines destroyed in period 1933-1934.

Survey

During 1934, a cooperative survey was conducted in the west and in 37 counties in an area extending nearly to the Ohio border on the west and to the Maryland line. In 1933, a somewhat similar infection survey was conducted in the forest fire control personnel (4,100 men) at the Department of Forestry and Game. Reports were received from 17, or 4 per cent of the men, scattered over 50 of the states. A total of 31 counties submitted 337 pine specimens, 14 of which with the men. During 1934, another survey was carried on by the Forest and Game through their field personnel numbering about 150 men. A list of 100 was found in 25 locations in 11 counties, in all of which infection previously reported.

A white pine survey of the state was begun in January, 1931. This work was performed by the blaster and control personnel with the assistance of the field personnel of the Department of Forestry and Game. At the end of 1932, the project had a 25 count and 2 additional counties partially surveyed. During 1933-1934, control area mapping was carried on under the E.C.W. and P.W.A. Program. In 1931, winter, and early spring months. Up to May 31, 1932, a total of 29,643 acres were mapped in detail and an additional 15,442 acres were examined but not mapped. A total of 45,085 acres were mapped with 1934. This mapping work required 442 man days.

Investigations

In the spring of 1934, the pine infection study plots were established in the counties. These plots will be re-examined periodically to determine the disease and the effectiveness of the control work performed. Later in the year, large study plots were established in heavily infected plantation in the same counties. The purpose of these plots is to determine if it is possible and economically to select final crop trees by pruning and releasing, and then cutting and burning them after these are mature.

Effectiveness of Blister Rust Control in Pennsylvania

Field studies were made in Pennsylvania during January and February, 1935. The amount of blister rust infection on white pines in protected and non-protected areas is compared with the amount of disease in uninfected areas. The plots, containing 25 rows, were laid out in the counties of Potter, Tioga, and Warren. These plots contain 3,984 white pines, of which 2,618, or 66 per cent, are infected with blister rust. The infection of the disease is indicated by the amount of the cankers on the trunk and on the branches. The amount of the cankers on the trunk and on the branches is indicated by the amount of the cankers on the trunk and on the branches. The amount of the cankers on the trunk and on the branches is indicated by the amount of the cankers on the trunk and on the branches.

To determine the effectiveness of Ribes eradication in controlling the rust, the pines, were examined for infection in 10 separate one-acre plots located in areas protected during 1929 and 1930 in the Counties of Potter, Clinton and Cameron. At the time of the control work, Ribes rotundifolium were generally distributed throughout the areas, the bushes being abundant and many of them of large size. This protection work represents the initial efforts to control the disease outside of nurseries in Pennsylvania. Of the 5,644 pines in the plots, 1,453, or 25.7 per cent, were found infected with 4,846 cankers. However, only 1.7 per cent of the total diseased trees became infected after the areas were protected and only 1.3 per cent of the total cankers originated after that time. These good protection results were obtained in spite of the large amount of Ribes prior to the application of control measures, and even though the eradication crews were composed chiefly of inexperienced men.

Total Cost of All Blister Rust Control Work, 1925-1934, Inclusive
(Including Federal control project at Allegheny National Forest)

State BR Approp.	Other State Approp.	Indiv.	B.P.I.	Forest Service	E.C.W.	P.W.A.	Total
63,358.10	310.42	1553.63	31,619.21	779.77	169,550.46	39,039.67	306,211.26

The total expenditures for all control activities include cost of administration, supervision, blister rust control agent activities, Ribes eradication, eradication assistants, nursery sanitation, field investigations, and miscellaneous.

Future Work

Complete initial control work in 301,536 acres, basis of 1934 estimates of acreage of initial work still remaining to be done. Maintenance of control by reworking areas when necessary after a period of 5 years - establish and maintain sanitation zones around all important pine growing nurseries - eradication of Ribes nigrum within important white pine growing section of state - continuation of field studies.

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Total Cost of All Blister Rust Control Work, 1925-1934, Inclusive
(Including Federal control project at Allegheny National Forest)

State BR	Other State	Indiv.	B.P.I.	Forest Service	E.C.W.	P.W.A.	Total
308.10	310.42	1553.63	31,619.21	779.77	169,250.46	39,039.67	308,211.26

The total expenditures for all control activities include cost of administration, supervision, blister rust control agent activities, Ribes eradication, eradication assistants, nursery sanitation, field investigations, and miscellaneous.

Future Work

Complete initial control work in 301,536 acres, basis of 1934 estimates of acreage of initial work still remaining to be done. Maintenance of control by reworking areas when necessary after a period of 5 years - establish and maintain sanitation zones around all important pine growing nurseries - eradication of Ribes nigrum within important white pine growing section of state - continuation of field studies.

